



6560-50-P

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 52

[EPA-R04-OAR-2010-0936-201150, FRL-9637-9]

Approval and Promulgation of Air Quality Implementation Plans; State of Georgia; Regional Haze State Implementation Plan

AGENCY: Environmental Protection Agency (EPA).

ACTION: Proposed rule.

SUMMARY: EPA is proposing a limited approval of a revision to the Georgia state implementation plan (SIP) submitted by the State of Georgia through the Georgia Department of Natural Resources, Environmental Protection Division (GA EPD), on February 11, 2010, as supplemented on November 19, 2010, that addresses regional haze for the first implementation period. This SIP revision, as supplemented, addresses the requirements of the Clean Air Act (CAA) and EPA's rules that require states to prevent any future and remedy any existing anthropogenic impairment of visibility in mandatory Class I areas (national parks and wilderness areas) caused by emissions of air pollutants from numerous sources located over a wide geographic area (also referred to as the "regional haze program"). States are required to assure reasonable progress toward the national goal of achieving natural visibility conditions in Class I areas. EPA is proposing a limited approval of this SIP revision to implement the regional haze requirements for Georgia on the basis that the revision, as a whole, strengthens the Georgia SIP. EPA has previously proposed a limited disapproval of the Georgia regional haze SIP because of deficiencies in the State's regional haze SIP submittal arising from the remand by the U.S. Court

of Appeals for the District of Columbia Circuit (D.C. Circuit) to EPA of the Clean Air Interstate Rule (CAIR). Consequently, EPA is not proposing to take action in this rulemaking to address the State's reliance on CAIR to meet certain regional haze requirements.

DATES: Comments must be received on or before [insert date 30 days from the date of publication in the Federal Register].

ADDRESSES: Submit your comments, identified by Docket ID No. EPA-R04-OAR-2010-0936, by one of the following methods:

1. www.regulations.gov: Follow the on-line instructions for submitting comments.
2. E-mail: benjamin.lynorae@pea.gov.
3. Fax: 404-562-9019.
4. Mail: EPA-R04-OAR-2010-0936, Regulatory Development Section, Air Planning Branch, Air, Pesticides and Toxics Management Division, U.S. Environmental Protection Agency, Region 4, 61 Forsyth Street, SW, Atlanta, Georgia 30303-8960.
5. Hand Delivery or Courier: Lynorae Benjamin, Chief, Regulatory Development Section, Air Planning Branch, Air, Pesticides and Toxics Management Division, U.S. Environmental Protection Agency, Region 4, 61 Forsyth Street, SW, Atlanta, Georgia 30303-8960. Such deliveries are only accepted during the Regional Office's normal hours of operation. The Regional Office's official hours of business are Monday through Friday, 8:30 to 4:30, excluding federal holidays.

Instructions: Direct your comments to Docket ID No. “EPA-R04-OAR-2010-0936.” EPA’s policy is that all comments received will be included in the public docket without change and may be made available online at www.regulations.gov, including any personal information provided, unless the comment includes information claimed to be Confidential Business Information (CBI) or other information whose disclosure is restricted by statute. Do not submit through www.regulations.gov or e-mail, information that you consider to be CBI or otherwise protected. The www.regulations.gov website is an “anonymous access” system, which means EPA will not know your identity or contact information unless you provide it in the body of your comment. If you send an e-mail comment directly to EPA without going through www.regulations.gov, your e-mail address will be automatically captured and included as part of the comment that is placed in the public docket and made available on the Internet. If you submit an electronic comment, EPA recommends that you include your name and other contact information in the body of your comment and with any disk or CD-ROM you submit. If EPA cannot read your comment due to technical difficulties and cannot contact you for clarification, EPA may not be able to consider your comment. Electronic files should avoid the use of special characters, any form of encryption, and be free of any defects or viruses. For additional information about EPA’s public docket visit the EPA Docket Center homepage at <http://www.epa.gov/epahome/dockets.htm>.

Docket: All documents in the electronic docket are listed in the www.regulations.gov index. Although listed in the index, some information is not publicly available, i.e., CBI or other information whose disclosure is restricted by statute. Certain other material, such as copyrighted material, is not placed on the Internet and will be publicly available only in hard copy form.

Publicly available docket materials are available either electronically in www.regulations.gov or in hard copy at the Regulatory Development Section, Air Planning Branch, Air, Pesticides and Toxics Management Division, U.S. Environmental Protection Agency, Region 4, 61 Forsyth Street, SW, Atlanta, Georgia 30303-8960. EPA requests that if at all possible, you contact the person listed in the **FOR FURTHER INFORMATION CONTACT** section to schedule your inspection. The Regional Office's official hours of business are Monday through Friday, 8:30 to 4:30, excluding federal holidays.

FOR FURTHER INFORMATION CONTACT: Sara Waterson or Michele Notarianni, Regulatory Development Section, Air Planning Branch, Air, Pesticides and Toxics Management Division, U.S. Environmental Protection Agency, Region 4, 61 Forsyth Street, SW, Atlanta, Georgia 30303-8960. Sara Waterson can be reached at telephone number (404) 562-9061 and by electronic mail at waterson.sara@epa.gov. Michele Notarianni can be reached at telephone number (404) 562-9031 and by electronic mail at notarianni.michele@epa.gov.

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I. What Action is EPA Proposing to Take?

EPA is proposing a limited approval of Georgia's February 11, 2010, SIP revision and November 19, 2010, SIP supplement, addressing regional haze under CAA sections 301(a) and 110(k)(3) because these revisions, as a whole, strengthen the Georgia SIP. Throughout this document, references to Georgia's "regional haze SIP" or "SIP submittal" or "SIP revision" collectively refer to Georgia's original February 11, 2010, SIP revision and the supplement to this February 2010 SIP revision submitted on November 19, 2010. This proposed rulemaking and the accompanying Technical Support Document¹ (TSD) explain the basis for EPA's proposed limited approval action.²

In a separate action, EPA has proposed a limited disapproval of the Georgia regional haze SIP because of deficiencies in the State's regional haze SIP submittal arising from the State's

¹ EPA's TSD to this action, entitled "*Technical Support Document for Georgia Regional Haze SIP Submittal*," is included in the public docket for this action.

² Under CAA sections 301(a) and 110(k)(6) and EPA's long-standing guidance, a limited approval results in approval of the entire SIP submittal, even of those parts that are deficient and prevent EPA from granting a full approval of the SIP revision. *Processing of State Implementation Plan (SIP) Revisions*, EPA Memorandum from John Calcagni, Director, Air Quality Management Division, OAQPS, to Air Division Directors, EPA Regional Offices I-X, September 7, 1992, (1992 Calcagni Memorandum) located at <http://www.epa.gov/ttn/caaa/t1/memoranda/siproc.pdf>.

reliance on CAIR to meet certain regional haze requirements. *See* 76 FR 82219 (December 30, 2011). EPA is not proposing to take action in today's rulemaking on issues associated with Georgia's reliance on CAIR in its regional haze SIP. Comments on EPA's proposed limited disapproval of Georgia's regional haze SIP are accepted at the docket for EPA's December 30, 2011, proposed rulemaking (*see* Docket ID No. EPA-HQ-OAR-2011-0729). The comment period for EPA's December 30, 2011, proposed rulemaking is scheduled to end on February 28, 2012.

II. What is the Background for EPA's Proposed Action?

A. The Regional Haze Problem

Regional haze is visibility impairment that is produced by a multitude of sources and activities which are located across a broad geographic area and emit fine particles (PM_{2.5}) (e.g., sulfates, nitrates, organic carbon, elemental carbon, and soil dust), and their precursors (e.g., sulfur dioxide (SO₂), nitrogen oxides (NO_x), and in some cases, ammonia (NH₃) and volatile organic compounds (VOC)). Fine particle precursors react in the atmosphere to form fine particulate matter which impairs visibility by scattering and absorbing light. Visibility impairment reduces the clarity, color, and visible distance that one can see. PM_{2.5} can also cause serious health effects and mortality in humans and contributes to environmental effects such as acid deposition and eutrophication.

Data from the existing visibility monitoring network, the "Interagency Monitoring of Protected Visual Environments" (IMPROVE) monitoring network, show that visibility impairment caused by air pollution occurs virtually all the time at most national park and

wilderness areas. The average visual range³ in many Class I areas⁴ (i.e., national parks and memorial parks, wilderness areas, and international parks meeting certain size criteria) in the western United States is 100-150 kilometers, or about one-half to two-thirds of the visual range that would exist without anthropogenic air pollution. In most of the eastern Class I areas of the United States, the average visual range is less than 30 kilometers, or about one-fifth of the visual range that would exist under estimated natural conditions. *See* 64 FR 35715 (July 1, 1999).

B. Requirements of the CAA and EPA's Regional Haze Rule (RHR)

In section 169A of the 1977 Amendments to the CAA, Congress created a program for protecting visibility in the nation's national parks and wilderness areas. This section of the CAA establishes as a national goal the "prevention of any future, and the remedying of any existing, impairment of visibility in mandatory Class I areas which impairment results from manmade air pollution." On December 2, 1980, EPA promulgated regulations to address visibility impairment in Class I areas that is "reasonably attributable" to a single source or small group of sources, i.e., "reasonably attributable visibility impairment." *See* 45 FR 80084. These regulations represented the first phase in addressing visibility impairment. EPA deferred action on regional haze that emanates from a variety of sources until monitoring, modeling and scientific knowledge about the relationships between pollutants and visibility impairment were improved.

³ Visual range is the greatest distance, in kilometers or miles, at which a dark object can be viewed against the sky.

⁴ Areas designated as mandatory Class I areas consist of national parks exceeding 6,000 acres, wilderness areas and national memorial parks exceeding 5,000 acres, and all international parks that were in existence on August 7, 1977. *See* 42 U.S.C. 7472(a). In accordance with section 169A of the CAA, EPA, in consultation with the Department of Interior, promulgated a list of 156 areas where visibility is identified as an important value. *See* 44 FR 69122 (November 30, 1979). The extent of a mandatory Class I area includes subsequent changes in boundaries, such as park expansions. *See* 42 U.S.C. 7472(a). Although states and tribes may designate as Class I additional areas which they consider to have visibility as an important value, the requirements of the visibility program set forth in section 169A of the CAA apply only to "mandatory Class I Federal areas." Each mandatory Class I area is the responsibility of a "Federal Land Manager." *See* 42 U.S.C. 7602(i). When the term "Class I area" is used in this action, it means a "mandatory Class I Federal area."

Congress added section 169B to the CAA in 1990 to address regional haze issues. EPA promulgated a rule to address regional haze on July 1, 1999 (64 FR 35713), the RHR. The RHR revised the existing visibility regulations to integrate into the regulation provisions addressing regional haze impairment and established a comprehensive visibility protection program for Class I areas. The requirements for regional haze, found at 40 CFR 51.308 and 51.309, are included in EPA's visibility protection regulations at 40 CFR 51.300-309. Some of the main elements of the regional haze requirements are summarized in section III of this preamble. The requirement to submit a regional haze SIP applies to all 50 states, the District of Columbia, and the Virgin Islands.⁵ 40 CFR 51.308(b) requires states to submit the first implementation plan addressing regional haze visibility impairment no later than December 17, 2007.

C. Roles of Agencies in Addressing Regional Haze

Successful implementation of the regional haze program will require long-term regional coordination among states, tribal governments and various federal agencies. As noted above, pollution affecting the air quality in Class I areas can be transported over long distances, even hundreds of kilometers. Therefore, to effectively address the problem of visibility impairment in Class I areas, states need to develop strategies in coordination with one another, taking into account the effect of emissions from one jurisdiction on the air quality in another.

Because the pollutants that lead to regional haze can originate from sources located across broad geographic areas, EPA has encouraged the states and tribes across the United States to address visibility impairment from a regional perspective. Five regional planning organizations (RPOs) were developed to address regional haze and related issues. The RPOs

⁵Albuquerque/Bernalillo County in New Mexico must also submit a regional haze SIP to completely satisfy the requirements of section 110(a)(2)(D) of the CAA for the entire State of New Mexico under the New Mexico Air Quality Control Act (section 74-2-4).

first evaluated technical information to better understand how their states and tribes impact Class I areas across the country, and then pursued the development of regional strategies to reduce emissions of particulate matter (PM) and other pollutants leading to regional haze.

The Visibility Improvement State and Tribal Association of the Southeast (VISTAS) RPO is a collaborative effort of state governments, tribal governments, and various federal agencies established to initiate and coordinate activities associated with the management of regional haze, visibility and other air quality issues in the southeastern United States. Member state and tribal governments include: Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia, and the Eastern Band of the Cherokee Indians.

III. What Are the Requirements for the Regional Haze SIPs?

A. The CAA and the RHR

Regional haze SIPs must assure reasonable progress toward the national goal of achieving natural visibility conditions in Class I areas. Section 169A of the CAA and EPA's implementing regulations require states to establish long-term strategies for making reasonable progress toward meeting this goal. Implementation plans must also give specific attention to certain stationary sources that were in existence on August 7, 1977, but were not in operation before August 7, 1962, and require these sources, where appropriate, to install BART controls for the purpose of eliminating or reducing visibility impairment. The specific regional haze SIP requirements are discussed in further detail below.

B. Determination of Baseline, Natural, and Current Visibility Conditions

The RHR establishes the deciview as the principal metric or unit for expressing visibility. This visibility metric expresses uniform changes in haziness in terms of common increments across the entire range of visibility conditions, from pristine to extremely hazy conditions. Visibility expressed in deciviews is determined by using air quality measurements to estimate light extinction and then transforming the value of light extinction using a logarithm function. The deciview is a more useful measure for tracking progress in improving visibility than light extinction itself because each deciview change is an equal incremental change in visibility perceived by the human eye. Most people can detect a change in visibility at one deciview.⁶

The deciview is used in expressing RPGs (which are interim visibility goals towards meeting the national visibility goal), defining baseline, current, and natural conditions, and tracking changes in visibility. The regional haze SIPs must contain measures that ensure “reasonable progress” toward the national goal of preventing and remedying visibility impairment in Class I areas caused by anthropogenic air pollution by reducing anthropogenic emissions that cause regional haze. The national goal is a return to natural conditions, i.e., anthropogenic sources of air pollution would no longer impair visibility in Class I areas.

To track changes in visibility over time at each of the 156 Class I areas covered by the visibility program (40 CFR 81.401-437), and as part of the process for determining reasonable progress, states must calculate the degree of existing visibility impairment at each Class I area at the time of each regional haze SIP submittal and periodically review progress every five years, i.e., midway through each 10-year implementation period. To do this, the RHR requires states to determine the degree of impairment (in deciviews) for the average of the 20 percent least impaired (“best”) and 20 percent most impaired (“worst”) visibility days over a specified time period at each of their Class I areas. In addition, states must also develop an estimate of natural

⁶ The preamble to the RHR provides additional details about the deciview. See 64 FR 35714, 35725 (July 1, 1999).

visibility conditions for the purpose of comparing progress toward the national goal. Natural visibility is determined by estimating the natural concentrations of pollutants that cause visibility impairment and then calculating total light extinction based on those estimates. EPA has provided guidance to states regarding how to calculate baseline, natural, and current visibility conditions in documents titled, EPA's *Guidance for Estimating Natural Visibility Conditions Under the Regional Haze Rule*, September 2003, (EPA-454/B-03-005 located at http://www.epa.gov/ttncaaa1/t1/memoranda/rh_envcurhr_gd.pdf), (hereinafter referred to as "EPA's 2003 Natural Visibility Guidance"), and *Guidance for Tracking Progress Under the Regional Haze Rule*, September 2003, (EPA-454/B-03-004 located at http://www.epa.gov/ttncaaa1/t1/memoranda/rh_tpurhr_gd.pdf), (hereinafter referred to as "EPA's 2003 Tracking Progress Guidance").

For the first regional haze SIPs that were due by December 17, 2007, "baseline visibility conditions" were the starting points for assessing "current" visibility impairment. Baseline visibility conditions represent the degree of visibility impairment for the 20 percent least impaired days and 20 percent most impaired days for each calendar year from 2000 to 2004. Using monitoring data for 2000 through 2004, states are required to calculate the average degree of visibility impairment for each Class I area, based on the average of annual values over the five-year period. The comparison of initial baseline visibility conditions to natural visibility conditions indicates the amount of improvement necessary to attain natural visibility, while the future comparison of baseline conditions to the then current conditions will indicate the amount of progress made. In general, the 2000 - 2004 baseline period is considered the time from which improvement in visibility is measured.

C. Determination of Reasonable Progress Goals (RPGs)

The vehicle for ensuring continuing progress toward achieving the natural visibility goal is the submission of a series of regional haze SIPs from the states that establish two RPGs (i.e., two distinct goals, one for the “best” and one for the “worst” days) for every Class I area for each (approximately) 10-year implementation period. The RHR does not mandate specific milestones or rates of progress, but instead calls for states to establish goals that provide for “reasonable progress” toward achieving natural (i.e., “background”) visibility conditions. In setting RPGs, states must provide for an improvement in visibility for the most impaired days over the (approximately) 10-year period of the SIP, and ensure no degradation in visibility for the least impaired days over the same period.

States have significant discretion in establishing RPGs, but are required to consider the following factors established in section 169A of the CAA and in EPA’s RHR at 40 CFR 51.308(d)(1)(i)(A): (1) the costs of compliance; (2) the time necessary for compliance; (3) the energy and non-air quality environmental impacts of compliance; and (4) the remaining useful life of any potentially affected sources. States must demonstrate in their SIPs how these factors are considered when selecting the RPGs for the best and worst days for each applicable Class I area. States have considerable flexibility in how they take these factors into consideration, as noted in EPA’s *Guidance for Setting Reasonable Progress Goals Under the Regional Haze Program* (“EPA’s Reasonable Progress Guidance”), July 1, 2007, memorandum from William L. Wehrum, Acting Assistant Administrator for Air and Radiation, to EPA Regional Administrators, EPA Regions 1-10 (pp. 4-2, 5-1). In setting the RPGs, states must also consider the rate of progress needed to reach natural visibility conditions by 2064 (referred to as the “uniform rate of progress” or the “glidepath”) and the emissions reduction measures needed to

achieve that rate of progress over the 10-year period of the SIP. Uniform progress towards achievement of natural conditions by the year 2064 represents a rate of progress which states are to use for analytical comparison to the amount of progress they expect to achieve. In setting RPGs, each state with one or more Class I areas (“Class I state”) must also consult with potentially “contributing states,” i.e., other nearby states with emissions sources that may be affecting visibility impairment at the Class I state’s areas. *See* 40 CFR 51.308(d)(1)(iv).

D. Best Available Retrofit Technology (BART)

Section 169A of the CAA directs states to evaluate the use of retrofit controls at certain larger, often uncontrolled, older stationary sources in order to address visibility impacts from these sources. Specifically, section 169A(b)(2)(A) of the CAA requires states to revise their SIPs to contain such measures as may be necessary to make reasonable progress towards the natural visibility goal, including a requirement that certain categories of existing major stationary sources⁷ built between 1962 and 1977 procure, install, and operate the “Best Available Retrofit Technology” as determined by the state. Under the RHR, states are directed to conduct BART determinations for such “BART-eligible” sources that may be anticipated to cause or contribute to any visibility impairment in a Class I area. Rather than requiring source-specific BART controls, states also have the flexibility to adopt an emissions trading program or other alternative program as long as the alternative provides greater reasonable progress towards improving visibility than BART.

On July 6, 2005, EPA published the *Guidelines for BART Determinations Under the Regional Haze Rule* at Appendix Y to 40 CFR Part 51 (hereinafter referred to as the “BART Guidelines”) to assist states in determining which of their sources should be subject to the BART

⁷The set of “major stationary sources” potentially subject to BART is listed in CAA section 169A(g)(7).

requirements and in determining appropriate emissions limits for each applicable source. In making a BART determination for a fossil fuel-fired electric generating plant with a total generating capacity in excess of 750 megawatts (MW), a state must use the approach set forth in the BART Guidelines. A state is encouraged, but not required, to follow the BART Guidelines in making BART determinations for other types of sources.

States must address all visibility-impairing pollutants emitted by a source in the BART determination process. The most significant visibility impairing pollutants are SO₂, NO_x, and PM. EPA has stated that states should use their best judgment in determining whether VOC or NH₃ compounds impair visibility in Class I areas.

Under the BART Guidelines, states may select an exemption threshold value for their BART modeling, below which a BART-eligible source would not be expected to cause or contribute to visibility impairment in any Class I area. The state must document this exemption threshold value in the SIP and must state the basis for its selection of that value. Any source with emissions that model above the threshold value would be subject to a BART determination review. The BART Guidelines acknowledge varying circumstances affecting different Class I areas. States should consider the number of emissions sources affecting the Class I areas at issue and the magnitude of the individual sources' impacts. Any exemption threshold set by the state should not be higher than 0.5 deciview.

In their SIPs, states must identify potential BART sources, described as "BART-eligible sources" in the RHR, and document their BART control determination analyses. In making BART determinations, section 169A(g)(2) of the CAA requires that states consider the following factors: (1) the costs of compliance, (2) the energy and non-air quality environmental impacts of compliance, (3) any existing pollution control technology in use at the source, (4) the remaining

useful life of the source, and (5) the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology. States are free to determine the weight and significance to be assigned to each factor.

A regional haze SIP must include source-specific BART emissions limits and compliance schedules for each source subject to BART. Once a state has made its BART determination, the BART controls must be installed and in operation as expeditiously as practicable, but no later than five years after the date of EPA approval of the regional haze SIP. *See* CAA section 169(g)(4)); *see* 40 CFR 51.308(e)(1)(iv). In addition to what is required by the RHR, general SIP requirements mandate that the SIP must also include all regulatory requirements related to monitoring, recordkeeping, and reporting for the BART controls on the source.

As noted above, the RHR allows states to implement an alternative program in lieu of BART so long as the alternative program can be demonstrated to achieve greater reasonable progress toward the national visibility goal than would BART. Under regulations issued in 2005 revising the regional haze program, EPA made just such a demonstration for CAIR. *See* 70 FR 39104 (July 6, 2005). EPA's regulations provide that states participating in the CAIR cap-and-trade program under 40 CFR part 96 pursuant to an EPA-approved CAIR SIP or which remain subject to the CAIR Federal Implementation Plan in 40 CFR part 97 need not require affected BART-eligible electrical generating (EGUs) to install, operate, and maintain BART for emissions of SO₂ and NO_x. *See* 40 CFR 51.308(e)(4). Because CAIR did not address direct emissions of PM, states were still required to conduct a BART analysis for PM emissions from EGUs subject to BART for that pollutant. Challenges to CAIR, however, resulted in the remand of the rule to EPA. *See North Carolina v. EPA*, 550 F.3d 1175 (D.C. Cir. 2008).

EPA issued a new rule in 2011 to address the interstate transport of NO_x and SO₂ in the eastern United States. *See* 76 FR 48208 (August 8, 2011) (“the Transport Rule,” also known as the Cross-State Air Pollution Rule). On December 30, 2011, EPA proposed to find that the trading programs in the Transport Rule would achieve greater reasonable progress towards the national goal than would BART in the states in which the Transport Rule applies. *See* 76 FR 82219. Based on this proposed finding, EPA also proposed to revise the RHR to allow states to substitute participation in the trading programs under the Transport Rule for source-specific BART. EPA has not yet taken final action on that rule. Also on December 30, 2011, the D.C. Circuit issued an order addressing the status of the Transport Rule and CAIR in response to motions filed by numerous parties seeking a stay of the Transport Rule pending judicial review. In that order, the D.C. Circuit stayed the Transport Rule pending the court’s resolutions of the petitions for review of that rule in *EME Homer Generation, L.P. v. EPA* (No. 11-1302 and consolidated cases). The court also indicated that EPA is expected to continue to administer CAIR in the interim until the court rules on the petitions for review of the Transport Rule.

E. Long-Term Strategy (LTS)

Consistent with the requirement in section 169A(b) of the CAA that states include in their regional haze SIP a 10 to 15 year strategy for making reasonable progress, section 51.308(d)(3) of the RHR requires that states include a LTS in their regional haze SIPs. The LTS is the compilation of all control measures a state will use during the implementation period of the specific SIP submittal to meet applicable RPGs. The LTS must include “enforceable emissions limitations, compliance schedules, and other measures as necessary to achieve the reasonable

progress goals” for all Class I areas within, or affected by emissions from, the state. *See* 40 CFR 51.308(d)(3).

When a state’s emissions are reasonably anticipated to cause or contribute to visibility impairment in a Class I area located in another state, the RHR requires the impacted state to coordinate with the contributing states in order to develop coordinated emissions management strategies. *See* 40 CFR 51.308(d)(3)(i). In such cases, the contributing state must demonstrate that it has included, in its SIP, all measures necessary to obtain its share of the emissions reductions needed to meet the RPGs for the Class I area. The RPOs have provided forums for significant interstate consultation, but additional consultations between states may be required to sufficiently address interstate visibility issues. This is especially true where two states belong to different RPOs.

States should consider all types of anthropogenic sources of visibility impairment in developing their LTS, including stationary, minor, mobile, and area sources. At a minimum, states must describe how each of the following seven factors listed below are taken into account in developing their LTS: (1) emissions reductions due to ongoing air pollution control programs, including measures to address RAVI; (2) measures to mitigate the impacts of construction activities; (3) emissions limitations and schedules for compliance to achieve the RPG; (4) source retirement and replacement schedules; (5) smoke management techniques for agricultural and forestry management purposes including plans as currently exist within the state for these purposes; (6) enforceability of emissions limitations and control measures; and (7) the anticipated net effect on visibility due to projected changes in point, area, and mobile source emissions over the period addressed by the LTS. *See* 40 CFR 51.308(d)(3)(v).

F. Coordinating Regional Haze and Reasonably Attributable Visibility Impairment (RAVI) LTS

As part of the RHR, EPA revised 40 CFR 51.306(c) regarding the LTS for RAVI to require that the RAVI plan must provide for a periodic review and SIP revision not less frequently than every three years until the date of submission of the state's first plan addressing regional haze visibility impairment, which was due December 17, 2007, in accordance with 40 CFR 51.308(b) and (c). On or before this date, the state must revise its plan to provide for review and revision of a coordinated LTS for addressing RAVI and regional haze, and the state must submit the first such coordinated LTS with its first regional haze SIP. Future coordinated LTS's, and periodic progress reports evaluating progress towards RPGs, must be submitted consistent with the schedule for SIP submission and periodic progress reports set forth in 40 CFR 51.308(f) and 51.308(g), respectively. The periodic review of a state's LTS must report on both regional haze and RAVI impairment and must be submitted to EPA as a SIP revision.

G. Monitoring Strategy and Other Implementation Plan Requirements

Section 51.308(d)(4) of the RHR includes the requirement for a monitoring strategy for measuring, characterizing, and reporting of regional haze visibility impairment that is representative of all mandatory Class I areas within the state. The strategy must be coordinated with the monitoring strategy required in section 51.305 for RAVI. Compliance with this requirement may be met through "participation" in the IMPROVE network, i.e., review and use of monitoring data from the network. The monitoring strategy is due with the first regional haze SIP, and it must be reviewed every five years. The monitoring strategy must also provide for

additional monitoring sites if the IMPROVE network is not sufficient to determine whether RPGs will be met.

The SIP must also provide for the following:

- Procedures for using monitoring data and other information in a state with mandatory Class I areas to determine the contribution of emissions from within the state to regional haze visibility impairment at Class I areas both within and outside the state;
- Procedures for using monitoring data and other information in a state with no mandatory Class I areas to determine the contribution of emissions from within the state to regional haze visibility impairment at Class I areas in other states;
- Reporting of all visibility monitoring data to the Administrator at least annually for each Class I area in the state, and where possible, in electronic format;
- Developing a statewide inventory of emissions of pollutants that are reasonably anticipated to cause or contribute to visibility impairment in any Class I area. The inventory must include emissions for a baseline year, emissions for the most recent year for which data are available, and estimates of future projected emissions. A state must also make a commitment to update the inventory periodically; and
- Other elements, including reporting, recordkeeping, and other measures necessary to assess and report on visibility.

The RHR requires control strategies to cover an initial implementation period extending to the year 2018, with a comprehensive reassessment and revision of those strategies, as appropriate, every 10 years thereafter. Periodic SIP revisions must meet the core requirements of section 51.308(d) with the exception of BART. The requirement to evaluate sources for BART applies only to the first regional haze SIP. Facilities subject to BART must continue to comply

with the BART provisions of section 51.308(e), as noted above. Periodic SIP revisions will assure that the statutory requirement of reasonable progress will continue to be met.

H. Consultation with States and Federal Land Managers (FLMs)

The RHR requires that states consult with FLMs before adopting and submitting their SIPs. *See* 40 CFR 51.308(i). States must provide FLMs an opportunity for consultation, in person and at least 60 days prior to holding any public hearing on the SIP. This consultation must include the opportunity for the FLMs to discuss their assessment of impairment of visibility in any Class I area and to offer recommendations on the development of the RPGs and on the development and implementation of strategies to address visibility impairment. Further, a state must include in its SIP a description of how it addressed any comments provided by the FLMs. Finally, a SIP must provide procedures for continuing consultation between the state and FLMs regarding the state's visibility protection program, including development and review of SIP revisions, five-year progress reports, and the implementation of other programs having the potential to contribute to impairment of visibility in Class I areas.

IV. What is EPA's Analysis of Georgia's Regional Haze Submittal?

On February 11, 2010, GA EPD submitted revisions to the Georgia SIP to address regional haze in the State's Class I areas as required by EPA's RHR. The State supplemented this February 2010 submittal on November 19, 2010, with title V permit amendments that contain emissions limitations for three facilities.

A. Affected Class I Areas

Georgia has three Class I areas within its borders: Cohutta Wilderness Area, Okefenokee Wilderness Area, and Wolf Island Wilderness Area. Georgia is responsible for developing a regional haze SIP that addresses these Class I areas and for consulting with other states that impact Georgia's Class I areas.

The Georgia regional haze SIP establishes RPGs for visibility improvement at each of these Class I areas and a LTS to achieve those RPGs within the first regional haze implementation period ending in 2018. In developing the LTS for each area, Georgia considered both emissions sources inside and outside of Georgia that may cause or contribute to visibility impairment in Georgia's Class I areas. The State also identified and considered emissions sources within Georgia that may cause or contribute to visibility impairment in Class I areas in neighboring states as required by 40 CFR 51.308(d)(3). The VISTAS RPO worked with the State in developing the technical analyses used to make these determinations, including state-by-state contributions to visibility impairment in specific Class I areas, which included the three areas in Georgia and those areas affected by emissions from Georgia.

B. Determination of Baseline, Natural, and Current Visibility Conditions

As required by the RHR and in accordance with EPA's 2003 Natural Visibility Guidance, Georgia calculated baseline/current and natural visibility conditions for each of its Class I areas, as summarized below (and as further described in sections III.B.1 and III.B.2 of EPA's TSD to this Federal Register action).

1. Estimating Natural Visibility Conditions

Natural background visibility, as defined in EPA's 2003 Natural Visibility Guidance, is estimated by calculating the expected light extinction using default estimates of natural concentrations of fine particle components adjusted by site-specific estimates of humidity. This calculation uses the IMPROVE equation, which is a formula for estimating light extinction from the estimated natural concentrations of fine particle components (or from components measured by the IMPROVE monitors). As documented in EPA's 2003 Natural Visibility Guidance, EPA allows states to use "refined" or alternative approaches to 2003 EPA guidance to estimate the values that characterize the natural visibility conditions of the Class I areas. One alternative approach is to develop and justify the use of alternative estimates of natural concentrations of fine particle components. Another alternative is to use the "new IMPROVE equation" that was adopted for use by the IMPROVE Steering Committee in December 2005.⁸ The purpose of this refinement to the "old IMPROVE equation" is to provide more accurate estimates of the various factors that affect the calculation of light extinction. Georgia opted to use the default estimates for the natural concentrations combined with the "new IMPROVE equation" for all of its areas. Using this approach, natural visibility conditions using the new IMPROVE equation were calculated separately for each Class I area by VISTAS.

⁸ The IMPROVE program is a cooperative measurement effort governed by a steering committee composed of representatives from federal agencies (including representatives from EPA and the FLMs) and RPOs. The IMPROVE monitoring program was established in 1985 to aid the creation of federal and state implementation plans for the protection of visibility in Class I areas. One of the objectives of IMPROVE is to identify chemical species and emissions sources responsible for existing anthropogenic visibility impairment. The IMPROVE program has also been a key participant in visibility-related research, including the advancement of monitoring instrumentation, analysis techniques, visibility modeling, policy formulation and source attribution field studies.

The new IMPROVE equation takes into account the most recent review of the science⁹ and it accounts for the effect of particle size distribution on light extinction efficiency of sulfate, nitrate, and organic carbon. It also adjusts the mass multiplier for organic carbon (particulate organic matter) by increasing it from 1.4 to 1.8. New terms are added to the equation to account for light extinction by sea salt and light absorption by gaseous nitrogen dioxide. Site-specific values are used for Rayleigh scattering (scattering of light due to atmospheric gases) to account for the site-specific effects of elevation and temperature. Separate relative humidity enhancement factors are used for small and large size distributions of ammonium sulfate and ammonium nitrate and for sea salt. The terms for the remaining contributors, elemental carbon (light-absorbing carbon), fine soil, and coarse mass terms, do not change between the original and new IMPROVE equations.

2. Estimating Baseline Conditions

GA EPD estimated baseline visibility conditions at the Georgia Class I areas using available monitoring data from two IMPROVE monitoring sites, one in the Okefenokee Wilderness Area and the other in the Cohutta Wilderness Area. The Wolf Island Wilderness Area does not contain an IMPROVE monitor. In cases where onsite monitoring is not available, 40 CFR 51.308(d)(2)(i) requires states to use the most representative monitoring available for the

⁹ The science behind the revised IMPROVE equation is summarized in numerous published papers. See, e.g., Hand, J.L., and Malm, W.C., 2006, *Review of the IMPROVE Equation for Estimating Ambient Light Extinction Coefficients - Final Report*. March 2006. Prepared for Interagency Monitoring of Protected Visual Environments (IMPROVE), Colorado State University, Cooperative Institute for Research in the Atmosphere, Fort Collins, Colorado.

http://vista.cira.colostate.edu/improve/publications/GrayLit/016_IMPROVEeqReview/IMPROVEeqReview.htm; and Pitchford, Marc., 2006, *Natural Haze Levels II: Application of the New IMPROVE Algorithm to Natural Species Concentrations Estimates*. Final Report of the Natural Haze Levels II Committee to the RPO Monitoring/Data Analysis Workgroup. September 2006
http://vista.cira.colostate.edu/improve/Publications/GrayLit/029_NaturalCondII/naturalhazelevelsIIreport.ppt.

2000-2004 period to establish baseline visibility conditions, in consultation with EPA. Georgia used, and EPA concurs, with the use of 2000-2004 data from the IMPROVE monitor at the Okefenokee Wilderness Area for the Wolf Island Wilderness Area. The IMPROVE Steering Committee considers the IMPROVE monitor at the Okefenokee Wilderness Area to be representative of visibility at Wolf Island. Okefenokee is the nearest Class I area to Wolf Island, and they possess similar characteristics, such as meteorology and topography.

As explained in section III.B, baseline visibility conditions are the same as current conditions for the first regional haze SIP. A five-year average of the 2000 to 2004 monitoring data was calculated for each of the 20 percent worst and 20 percent best visibility days at each Georgia Class I area. IMPROVE data records for Okefenokee for the period 2000 to 2004 meet the EPA requirements for data completeness.¹⁰ IMPROVE data for Cohutta did not meet completeness criteria in the years 2000, 2001, and 2003. Data records for 2001 and 2003 were filled using data substitution procedures.¹¹ There was too little data in 2000 to perform data filling.

Appendix B.1 of the Georgia regional haze SIP lists the 20 percent best and worst days for the baseline period of 2000-2004 for the Okefenokee and Cohutta areas. This data is also provided at the following website: http://www.metro4-sesarm.org/vistas/SesarmBext_20BW.htm.

3. Summary of Baseline and Natural Conditions

For the Georgia Class I areas, baseline visibility conditions on the 20 percent worst days range between approximately 27 and 30.5 deciviews. Natural visibility in these areas is

¹⁰ EPA's 2003 Tracking Progress Guidance, page 2-8.

¹¹ Ibid.

predicted to be between approximately 10.5 and 11.5 deciviews on the 20 percent worst days.

The natural and baseline conditions for Georgia’s Class I areas for both the 20 percent worst and best days are presented in Table 1 below.

Table 1: Natural Background and Baseline Conditions for Georgia’s Class I Areas		
Class I Area	Average for 20 Percent Worst Days (dv¹²)	Average for 20 Percent Best Days (dv)
Natural Background Conditions		
Cohutta Wilderness Area	10.78	4.32
Okefenokee Wilderness Area	11.21	5.31
Wolf Island Wilderness Area	11.21	5.31
Baseline Visibility Conditions (2000-2004)		
Cohutta Wilderness Area	30.25	13.77
Okefenokee Wilderness Area	27.13	15.23
Wolf Island Wilderness Area	27.13	15.23

4. Uniform Rate of Progress

In setting the RPGs, Georgia considered the uniform rate of progress needed to reach natural visibility conditions by 2064 (“glidepath”) and the emissions reduction measures needed to achieve that rate of progress over the period of the SIP to meet the requirements of 40 CFR 51.308(d)(1)(i)(B). As explained in EPA’s Reasonable Progress Guidance document, the uniform rate of progress is not a presumptive target, and RPGs may be greater than, less than, or equivalent to the glidepath.

The State’s implementation plan presents two sets of graphs, one for the 20 percent best days, and one for the 20 percent worst days, for its three Class I areas. Georgia constructed the graph for the worst days (i.e., the glidepath) in accordance with EPA’s 2003 Tracking Progress Guidance by plotting a straight graphical line from the baseline level of visibility impairment for

¹²The term, “dv,” is the abbreviation for “deciview.”

2000-2004 to the level of visibility conditions representing no anthropogenic impairment in 2064 for its three areas. For the best days, the graph includes a horizontal, straight line spanning from baseline conditions in 2004 out to 2018 to depict no degradation in visibility over the implementation period of the SIP. Georgia's SIP shows that the State's RPGs for its areas provide for improvement in visibility for the 20 percent worst days over the period of the implementation plan and ensure no degradation in visibility for the 20 percent best days over the same period, in accordance with 40 CFR 51.308(d)(1).

For the Cohutta Class I area, the overall visibility improvement necessary to reach natural conditions is the difference between baseline visibility of 30.25 deciviews for the 20 percent worst days and natural conditions of 10.78 deciviews, i.e., 19.47 deciviews. Over the 60-year period from 2004 to 2064, this would require an average improvement of 0.325 deciviews per year to reach natural conditions. Hence, for the 14-year period from 2004 to 2018, in order to achieve visibility improvements at least equivalent to the uniform rate of progress for the 20 percent worst days at the Cohutta Wilderness Area, Georgia would need to project at least 4.55 deciviews (approximately) over the first implementation period (i.e., $0.325 \text{ deciviews} \times 14 \text{ years} = 4.55 \text{ deciviews}$) of visibility improvement from the 30.25 deciviews baseline in 2004, resulting in visibility levels at or below approximately 25.7 deciviews in 2018. As discussed below in section IV.C.7, "Reasonable Progress Goals," Georgia projects a 7.45 deciview improvement to visibility in the Cohutta Wilderness Area from the 30.25 deciview baseline to 22.8 deciviews in 2018 for the 20 percent most impaired days, and a 2.02 deciview improvement to 11.75 deciviews from the baseline visibility of 13.77 deciviews for the 20 percent least impaired days.

For the Okefenokee and Wolf Island Class I areas, the overall visibility improvement necessary to reach natural conditions is the difference between baseline visibility of 27.13

deciviews for the 20 percent worst days and natural conditions of 11.21 deciviews, i.e., 15.92 deciviews. Over the 60-year period from 2004 to 2064, this would require an average improvement of 0.265 deciviews per year to reach natural conditions. Hence, for the 14-year period from 2004 to 2018, in order to achieve visibility improvements at least equivalent to the uniform rate of progress for the 20 percent worst days at the Okefenokee and Wolf Island Wilderness Areas, Georgia would need to project at least 3.71 deciviews (approximately) over the first implementation period (i.e., $0.265 \text{ deciviews} \times 14 \text{ years} = 3.71 \text{ deciviews}$) of visibility improvement from the 27.13 deciviews baseline in 2004, resulting in visibility levels at or below 23.42 deciviews in 2018. As discussed below in section IV.C.7, “Reasonable Progress Goals,” Georgia projects a 3.31 deciview improvement to visibility for the Okefenokee and Wolf Island Class I areas from the 27.13 deciview baseline to 23.82 deciviews in 2018 for the 20 percent most impaired days, and a 1.31 deciview improvement to 13.92 deciviews from the baseline visibility of 15.23 deciviews for the 20 percent least impaired days.

C. Long-Term Strategy/Strategies

As described in section III.E of this action, the LTS is a compilation of state-specific control measures relied on by the state for achieving its RPGs. Georgia’s LTS for the first implementation period addresses the emissions reductions from federal, state, and local controls that take effect in the State from the end of the baseline period starting in 2004 until 2018. The Georgia LTS was developed by the State, in coordination with the VISTAS RPO, through an evaluation of the following components: (1) identification of the emissions units within Georgia and in surrounding states that likely have the largest impacts currently on visibility at the State’s three Class I areas; (2) estimation of emissions reductions for 2018 based on all controls required

or expected under federal and state regulations for the 2004-2018 period (including BART); (3) comparison of projected visibility improvement with the uniform rate of progress for the State's Class I areas; and (4) application of the four statutory factors in the reasonable progress analysis for the identified emissions units to determine if additional reasonable controls were required.

In a separate action proposing limited disapproval of the regional haze SIPs of a number of states, EPA noted that these states relied on the trading programs of CAIR to satisfy the BART requirement and the requirement for a LTS sufficient to achieve the state-adopted RPGs. *See* 76 FR 82219 (December 30, 2011). In that action, EPA proposed a limited disapproval of Georgia's regional haze SIP submittal insofar as the SIP relied on CAIR. For that reason, EPA is not taking action on that aspect of Georgia's regional haze SIP in this rulemaking. Comments on the December 30, 2011, proposed determination are accepted at Docket ID No. EPA-HQ-OAR-2011-0729. The comment period for EPA's December 30, 2011, proposed rulemaking is scheduled to end on February 28, 2012.

1. Emissions Inventory for 2018 with Federal and State Control Requirements

The emissions inventory used in the regional haze technical analyses was developed by VISTAS with assistance from Georgia. The 2018 emissions inventory was developed by projecting 2002 emissions and applying reductions expected from federal and state regulations affecting the emissions of VOC and the visibility-impairing pollutants NO_x, PM, and SO₂. The BART Guidelines direct states to exercise judgment in deciding whether VOC and NH₃ impair visibility in their Class I area(s). As discussed further in section IV.C.3, VISTAS performed modeling sensitivity analyses, which demonstrated that anthropogenic emissions of VOC and NH₃ do not significantly impair visibility in the VISTAS region. Thus, while emissions

inventories were also developed for NH₃ and VOC, and applicable federal VOC reductions were incorporated into Georgia's regional haze analyses, Georgia did not further evaluate NH₃ and VOC emissions sources for potential controls under BART or reasonable progress.

VISTAS developed emissions for five inventory source classifications: stationary point and area sources, off-road and on-road mobile sources, and biogenic sources. Stationary point sources are those sources that emit greater than a specified tonnage per year, depending on the pollutant, with data provided at the facility level. Stationary area sources are those sources whose individual emissions are relatively small, but due to the large number of these sources, the collective emissions from the source category could be significant. VISTAS estimated emissions on a countywide level for the inventory categories of: a) stationary area sources; b) off-road (or non-road) mobile sources (i.e., equipment that can move but does not use roadways); and c) biogenic sources (which are natural sources of emissions, such as trees). On-road mobile source emissions are estimated by vehicle type and road type, and are summed to the countywide level.

There are many federal and state control programs being implemented that VISTAS and Georgia anticipate will reduce emissions between the end of the baseline period and 2018. Emissions reductions from these control programs are projected to achieve substantial visibility improvement by 2018 in the Georgia Class I areas. The control programs relied upon by Georgia include: CAIR; federal 2007 heavy duty diesel (2007) engine standards for on-road trucks and buses; federal Tier 2 tailpipe controls for on-road vehicles; federal large spark ignition and recreational vehicle controls; EPA's non-road diesel rules; Georgia Rule 391-3-1-.02(2)(yy), "Emissions of Nitrogen Oxides from Major Sources" requiring NO_x reasonably available control technology for subject sources in the Atlanta 1-hour ozone non-attainment area; Georgia Rule 391-3-1-.02(2)(sss), "Multipollutant Control for Electric Utility Steam Generating Units;" and

NO_x and/or VOC reductions from the control rules in 1-hour ozone SIPs for Atlanta, Birmingham, and Northern Kentucky. Controls from various federal Maximum Achievable Control Technology (MACT) rules were also utilized in the development of the 2018 emissions inventory projections. These MACT rules include the industrial boiler/process heater MACT (referred to as “Industrial Boiler MACT”), the combustion turbine and reciprocating internal combustion engines MACTs, and the VOC 2-, 4-, 7-, and 10-year MACT standards.

Effective July 30, 2007, the D.C. Circuit mandated the vacatur and remand of the Industrial Boiler MACT Rule.¹³ This MACT was vacated since it was directly affected by the vacatur and remand of the Commercial and Industrial Solid Waste Incinerator Definition Rule. EPA proposed a new Industrial Boiler MACT rule to address the vacatur on June 4, 2010, (75 FR 32006) and issued a final rule on March 21, 2011 (76 FR 15608). The VISTAS modeling included emissions reductions from the vacated Industrial Boiler MACT rule, and Georgia did not redo its modeling analysis when the rule was re-issued. Even though Georgia’s modeling is based on the vacated Industrial Boiler MACT limits, the State’s modeling conclusions are unlikely to be affected because the expected reductions due to the vacated rule were relatively small compared to the State’s total SO₂, PM_{2.5}, and coarse particulate matter (PM₁₀) emissions in 2018 (i.e., 0.1 to 0.7 percent, depending on the pollutant, of the projected 2018 SO₂, PM_{2.5}, and PM₁₀ inventory). Thus, EPA does not expect that differences between the vacated and final Industrial Boiler MACT emissions limits would affect the adequacy of the existing Georgia regional haze SIP. If there is a need to address discrepancies between projected emissions reductions from the vacated Industrial Boiler MACT and the Industrial Boiler MACT issued March 21, 2011 (76 FR 15608), EPA expects Georgia to do so in the State’s five-year progress report.

¹³ See *NRDC v. EPA*, 489 F.3d 1250 (D.C. Cir. 2007).

Tables 2 and 3, below, summarize the 2002 baseline and 2018 estimated emissions inventories for Georgia.¹⁴

Table 2: 2002 Emissions Inventory Summary for Georgia (tons per year (tpy))

	VOC	NO_x	PM_{2.5}	PM₁₀	NH₃	SO₂
Point	34,964.3	197,376.9	22,531.7	33,077.3	3,669.2	571,410.9
Area	333,044.8	49,987.4	159,437.8	757,656.1	83,066.0	60,370.2
On-Road Mobile	283,420.6	307,731.7	5167.8	7,245.9	10,546.2	12,183.5
Off-Road Mobile	85,965.4	97,961.4	8,226.4	8,617.9	60.4	9,005.4
Total	737,395.1	653,057.4	195,363.7	806,597.2	97,341.8	652,970

Table 3: 2018 Emissions Inventory Summary for Georgia (tpy)

	VOC	NO_x	PM_{2.5}	PM₁₀	NH₃	SO₂
Point	43,097.8	125,680.0	36,297.4	48,005.1	6,474.4	127,863.6
Area	353,224.5	55,518.5	180,697.2	944,009.4	102,112.4	62,636.2
On-Road Mobile	109,763.3	102,179.2	2,380.2	4,843.6	14,873.2	1,457.0
Off-road Mobile	56,760.7	64,578.8	5729.7	6015.1	78.6	1,708.8
Total	562,846.3	347,956.5	225,104.5	1,002,873.2	123,538.6	193,665.6

2. Modeling to Support the LTS and Determine Visibility Improvement for Uniform Rate of Progress

VISTAS performed modeling for the regional haze LTS for the 10 southeastern states, including Georgia. The modeling analysis is a complex technical evaluation that began with selection of the modeling system. VISTAS used the following modeling system:

- **Meteorological Model:** The Pennsylvania State University/National Center for Atmospheric Research Mesoscale Meteorological Model is a nonhydrostatic, prognostic meteorological model routinely used for urban- and regional- scale photochemical, PM_{2.5}, and regional haze regulatory modeling studies.

¹⁴ Tables 2 and 3 exclude biogenic emissions data provided in the February 2010 Georgia regional haze SIP submittal.

- Emissions Model: The Sparse Matrix Operator Kernel Emissions modeling system is an emissions modeling system that generates hourly gridded speciated emissions inputs of mobile, non-road mobile, area, point, fire, and biogenic emissions sources for photochemical grid models.
- Air Quality Model: The EPA's Models-3/Community Multiscale Air Quality (CMAQ) modeling system is a photochemical grid model capable of addressing ozone, PM, visibility, and acid deposition at a regional scale. The photochemical model selected for this study was CMAQ version 4.5. It was modified through VISTAS with a module for Secondary Organics Aerosols in an open and transparent manner that was also subjected to outside peer review.

CMAQ modeling of regional haze in the VISTAS region for 2002 and 2018 was carried out on a grid of 12x12 kilometer cells that covers the 10 VISTAS states (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, West Virginia) and states adjacent to them. This grid is nested within a larger national CMAQ modeling grid of 36x36 kilometer cells that covers the continental United States, portions of Canada and Mexico, and portions of the Atlantic and Pacific Oceans along the east and west coasts. Selection of a representative period of meteorology is crucial for evaluating baseline air quality conditions and projecting future changes in air quality due to changes in emissions of visibility-impairing pollutants. VISTAS conducted an in-depth analysis which resulted in the selection of the entire year of 2002 (January 1-December 31) as the best period of meteorology available for conducting the CMAQ modeling. The VISTAS states modeling was developed consistent with EPA's *Guidance on the Use of Models and Other Analyses for Demonstrating*

Attainment of Air Quality Goals for Ozone, PM_{2.5}, and Regional Haze, located at <http://www.epa.gov/scram001/guidance/guide/final-03-pm-rh-guidance.pdf>, EPA-454/B-07-002, April 2007, and EPA document, *Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations*, located at <http://www.epa.gov/ttnchie1/eidocs/eiguid/index.html>, EPA-454/R-05-001, August 2005, updated November 2005 (“EPA’s Modeling Guidance”).

VISTAS examined the model performance of the regional modeling for the areas of interest before determining whether the CMAQ model results were suitable for use in the regional haze assessment of the LTS and for use in the modeling assessment. The modeling assessment predicts future levels of emissions and visibility impairment used to support the LTS and to compare predicted, modeled visibility levels with those on the uniform rate of progress. In keeping with the objective of the CMAQ modeling platform, air quality model performance was evaluated using graphical and statistical assessments based on measured ozone, fine particles, and acid deposition from various monitoring networks and databases for the 2002 base year. VISTAS used a diverse set of statistical parameters from the EPA’s Modeling Guidance to stress and examine the model and modeling inputs. Once VISTAS determined the model performance to be acceptable, VISTAS used the model to assess the 2018 RPGs using the current and future year air quality modeling predictions, and compared the RPGs to the uniform rate of progress.

In accordance with 40 CFR 51.308(d)(3), the State of Georgia provided the appropriate supporting documentation for all required analyses used to determine the State’s LTS. The technical analyses and modeling used to develop the glidepath and to support the LTS are consistent with EPA’s RHR and interim and final EPA Modeling Guidance. EPA proposes to

accept the VISTAS technical modeling to support the LTS and to determine visibility improvement for the uniform rate of progress because the modeling system was chosen and simulated according to EPA Modeling Guidance. EPA proposes to agree with the VISTAS model performance procedures and results, and that the CMAQ is an appropriate tool for the regional haze assessments for the Georgia LTS and regional haze SIP.

3. Relative Contributions to Visibility Impairment: Pollutants, Source Categories, and Geographic Areas

An important step toward identifying reasonable progress measures is to identify the key pollutants contributing to visibility impairment at each Class I area. To understand the relative benefit of further reducing emissions from different pollutants, source sectors, and geographic areas, VISTAS developed emissions sensitivity model runs using CMAQ to evaluate visibility and air quality impacts from various groups of emissions and pollutant scenarios in the Class I areas on the 20 percent worst visibility days.

Regarding which pollutants are most significantly impacting visibility in the VISTAS region, VISTAS' contribution assessment, based on IMPROVE monitoring data, demonstrated that ammonium sulfate is the major contributor to $PM_{2.5}$ mass and visibility impairment at Class I areas in the VISTAS and neighboring states. On the 20 percent worst visibility days in 2000-2004, ammonium sulfate accounted for 75 to 87 percent of the calculated light extinction at the inland Class I areas in VISTAS, and 69 to 74 percent of the calculated light extinction for all but one of the coastal Class I areas in the VISTAS states. In particular, for the Okefenokee and Cohutta Wilderness Areas, sulfate particles resulting from SO_2 emissions contribute roughly 69 and 84 percent, respectively, to the calculated light extinction on the haziest days. In contrast, ammonium nitrate contributed five percent or less of the calculated light extinction at VISTAS

Class I areas on the 20 percent worst visibility days. Particulate organic matter (organic carbon) accounted for 20 percent or less of the light extinction on the 20 percent worst visibility days at the VISTAS Class I areas.

VISTAS grouped its 18 Class I areas into two types, either “coastal” or “inland” (sometimes referred to as “mountain”) sites, based on common/similar characteristics (e.g., terrain, geography, meteorology), to better represent variations in model sensitivity and performance within the VISTAS region and to describe the common factors influencing visibility conditions in the two types of Class I areas. The Cohutta Class I area is considered an “inland” area and the Okefenokee and Wolf Island Class I areas are both “coastal” areas.

Results from VISTAS’ emissions sensitivity analyses indicate that sulfate particles resulting from SO₂ emissions are the dominant contributor to visibility impairment on the 20 percent worst days at all Class I areas in VISTAS, including the three Georgia areas. Georgia concluded that reducing SO₂ emissions from EGU and non-EGU point sources in the VISTAS states would have the greatest visibility benefits for the Georgia Class I areas. Because ammonium nitrate is a small contributor to PM_{2.5} mass and visibility impairment on the 20 percent worst days at the inland Class I areas in VISTAS, the benefits of reducing NO_x and NH₃ emissions at these sites are small.

The VISTAS sensitivity analyses show that VOC emissions from biogenic sources such as vegetation also contribute to visibility impairment. However, control of these biogenic sources of VOC would be extremely difficult, if not impossible. The anthropogenic sources of VOC emissions are minor compared to the biogenic sources. Therefore, controlling anthropogenic sources of VOC emissions would have little, if any, visibility benefits at the Class I areas in the VISTAS region, including those in Georgia. The sensitivity analyses also show

that reducing primary carbon from point sources, ground level sources, or fires is projected to have small to no visibility benefit at the VISTAS Class I areas.

Georgia considered the factors listed in 40 CFR 51.308(d)(3)(v) and in section III.E of this action to develop its LTS as described below. Georgia, in conjunction with VISTAS, demonstrated in its SIP that elemental carbon (a product of highway and non-road diesel engines, agricultural burning, prescribed fires, and wildfires) and fine soils (a product of construction activities and activities that generate fugitive dust), are relatively minor contributors to visibility impairment at the Class I areas in Georgia. Additionally, the State, in conjunction with VISTAS, demonstrated that the benefits of reducing point source ammonia emissions are small. With regard to area source ammonia emissions, while reducing ammonia emissions would be relatively more beneficial for Georgia's two coastal Class I areas than the Cohutta area, these emissions are primarily from agricultural activity, specifically fertilizing operations and animal farming. The State explains in its SIP that because there are no economically feasible options for controlling these types of area sources of ammonia emissions, and GA EPD does not have regulatory authority to control these sources, Georgia did not further evaluate this source category for control.

Georgia considered agricultural and forestry smoke management techniques to address visibility impacts from elemental carbon. On July 11, 2008, GA EPD entered into a memorandum of understanding with the Georgia Forestry and Georgia Department of Natural Resources Wildlife Resources Division adopting a smoke management program that utilizes basic smoke management practices and addresses the issues laid out in the EPA's 1998 *Interim Air Quality Policy on Wildland and Prescribed Fires* available at:

<http://www.epa.gov/ttncaaa1/t1/memoranda/firefnl.pdf>. With regard to fine soils, the State

considered those activities that generate fugitive dust, including construction activities.

Georgia's Rules for Air Quality Control include requirements for precautions to prevent fugitive dust from becoming airborne and to limit the opacity of fugitive emissions to less than 20 percent. The requirements of Georgia Rule 391-3-1-.02(n), "Fugitive Dust," include preventive measures for construction activities.

EPA preliminarily concurs with the State's technical demonstration showing that elemental carbon, fine soils, and ammonia are not significant contributors to visibility in the State's Class I areas, and therefore, proposes to find that Georgia has adequately satisfied 40 CFR 51.308(d)(3)(v). EPA's TSD to this Federal Register action and Georgia's SIP provide more details on the State's consideration of these factors for Georgia's LTS.

The emissions sensitivity analyses conducted by VISTAS predict that reductions in SO₂ emissions from EGU and non-EGU industrial point sources will result in the greatest improvements in visibility in the Class I areas in the VISTAS region, more than any other visibility-impairing pollutant. Specific to Georgia, the VISTAS sensitivity analysis projects visibility benefits in the Georgia Class I areas and Class I areas outside the State impacted by Georgia sources from SO₂ reductions from EGUs in the VISTAS states. Additional, smaller benefits are projected from SO₂ emissions reductions from non-utility industrial point sources. SO₂ emissions contributions to visibility impairment from other RPO regions are comparatively small in contrast to the VISTAS states' contributions, and thus, controlling sources outside of the VISTAS region is predicted to provide less significant improvements in visibility in the Class I areas in VISTAS.

Taking the VISTAS sensitivity analyses results into consideration, Georgia concluded that reducing SO₂ emissions from EGU and non-EGU point sources in certain VISTAS states

would have the greatest visibility benefits for the Georgia Class I areas. The State chose to focus solely on evaluating certain SO₂ sources contributing to visibility impairment to the State's Class I areas for additional emissions reductions for reasonable progress in this first implementation period (described in sections IV.C.4 and IV.C.5 of this action). EPA proposes to agree with the State's analyses and conclusions used to determine the pollutants and source categories that most contribute to visibility impairment in the Georgia Class I areas, and proposes to find the State's approach to focus on developing a LTS that includes largely additional measures for point sources of SO₂ emissions to be appropriate.

SO₂ sources for which it is demonstrated that no additional controls are reasonable in this current implementation period will not be exempted from future assessments for controls in subsequent implementation periods or, when appropriate, from the five-year periodic SIP reviews. In future implementation periods, additional controls on these SO₂ sources evaluated in the first implementation period may be determined to be reasonable, based on a reasonable progress control evaluation, for continued progress toward natural conditions for the 20 percent worst days and to avoid further degradation of the 20 percent best days. Similarly, in subsequent implementation periods, the State may use different criteria for identifying sources for evaluation and may consider other pollutants as visibility conditions change over time.

4. Procedure for Identifying Sources to Evaluate for Reasonable Progress Controls in Georgia and Surrounding Areas

As discussed in section IV.C.3 of this action, through comprehensive evaluations by VISTAS and the Southern Appalachian Mountains Initiative (SAMI),¹⁵ the VISTAS states

¹⁵ Prior to VISTAS, the southern states cooperated in a voluntary regional partnership "to identify and recommend reasonable measures to remedy existing and prevent future adverse effects from human-induced air pollution on the

concluded that sulfate particles resulting from SO₂ emissions account for the greatest portion of the regional haze affecting the Class I areas in VISTAS states, including those in Georgia.

Utility and non-utility boilers are the main sources of SO₂ emissions within the southeastern United States. VISTAS developed a methodology for Georgia that enables the State to focus its reasonable progress analysis on those geographic regions and source categories that impact visibility at each of its Class I areas. Recognizing that there was neither sufficient time nor adequate resources available to evaluate all emissions units within a given area of influence (AOI) around each of the Class I areas that Georgia's sources impact, the State established a threshold to determine which emissions units would be evaluated for reasonable progress control. In applying this methodology, GA EPD first calculated the fractional contribution to visibility impairment from all emissions units within the SO₂ AOI for each of its Class I areas, and those surrounding areas in other states potentially impacted by emissions from emissions units in Georgia. The State then identified those emissions units with a contribution of one half (0.5) percent or more to the visibility impairment at that particular Class I area, and evaluated each of these units for control measures for reasonable progress using the following four "reasonable progress factors" required under 40 CFR 51.308(d)(1)(i)(A): (i) cost of compliance; (ii) time necessary for compliance; (iii) energy and non-air quality environmental impacts of compliance; and (iv) remaining useful life of the emissions unit.

Georgia's SO₂ AOI methodology captured greater than 70 percent of the total point source SO₂ contribution to visibility impairment in two of Georgia's three Class I areas and required an evaluation of more than 30 units. At the remaining area, Cohutta Wilderness Area,

air quality related values of the Southern Appalachian Mountains." States cooperated with FLMs, EPA, industry, environmental organizations, and academia to complete a technical assessment of the impacts of acid deposition, ozone, and fine particles on sensitive resources in the Southern Appalachians. The SAMI Final Report was delivered in August 2002.

the 0.5 percent threshold represents 69 percent of the total SO₂ contribution to visibility impairment and required an evaluation of 38 units. Capturing a significantly greater percentage of the total contribution would involve an evaluation of many more emissions units that have substantially less impact. EPA believes the approach developed by VISTAS and implemented for the Class I areas in Georgia is a reasonable methodology to prioritize the most significant contributors to regional haze and to identify sources to assess for reasonable progress control in the State's Class I area. The approach is consistent with EPA's Reasonable Progress Guidance. The technical approach of VISTAS and Georgia was objective and based on several analyses including the evaluation of a large universe of emissions units within and surrounding the State of Georgia and all of the 18 VISTAS Class I areas. It also included an analysis of the VISTAS emissions units affecting nearby Class I areas surrounding the VISTAS states that are located in other RPOs' Class I areas.

5. Application of the Four CAA factors in the Reasonable Progress Analysis

Under Georgia's state rule 391-3-1-.02(13), "Clean Air Interstate Rule SO₂ Annual Trading Program," SO₂ emissions from Georgia EGUs will be capped at 149,140 tons in 2015, a 70 percent reduction from 2002 actual emissions. GA EPD concluded that additional EGU control for SO₂ during this time period is not reasonable for the EGU sources that contribute greater than 0.5 percent to visibility impairment at Class I areas that are clearly projected to meet or exceed the uniform rate of progress in 2018. However, for five EGUs at three facilities owned by Georgia Power (see Table 4) that meet the State's minimum threshold for reasonable progress evaluation at Class I areas not clearly at or below the glidepath (Okefenokee and Wolf Island Wilderness Areas), GA EPD did consider additional controls.

GA EPD initially identified 24 additional non-EGU emissions units at 13 facilities in Georgia (see Table 4) which meet the State's minimum threshold for a reasonable progress control evaluation (i.e., because they were modeled to fall within the SO₂ AOI of any Class I area and have a 0.5 percent or greater contribution to the sulfate visibility impairment in at least one Class I area).¹⁶ GA EPD later determined, based on updated data, that of these 24 non-EGU units, seven units at four facilities would not contribute 0.5 percent or greater of the total sulfate visibility impairment at any Class I area in 2018 and thus, these seven units were not subject to a reasonable progress control evaluation. In addition, six units at three facilities requested and received emissions limits to reduce the projected sulfate visibility impairment from each emissions unit to less than 0.5 percent. Finally, one of the emissions units is subject to BART review under the RHR. As discussed in EPA's Reasonable Progress Guidance, since the BART analysis is based, in part, on an assessment of many of the same factors that must be addressed in establishing the RPG, EPA believes it is reasonable to conclude that any control requirements imposed in the BART determination also satisfy the RPG-related requirements for source review in the first implementation period.¹⁷ Therefore, reasonable progress control reviews were conducted on the remaining 10 non-EGU emissions units at five facilities and five EGUs at three facilities.

¹⁶ See also EPA's TSD, section III.C.2, fractional contribution analysis tables for each Class I area, excerpted from the Georgia SIP, Appendix H.2.

¹⁷ EPA's Reasonable Progress Guidance, pages 4.2-4-3.

Table 4: Georgia Facilities Subject to Reasonable Progress Analysis

Facilities With Emissions Unit(s) Subject to Reasonable Progress Analysis	
	Georgia Pacific - Brunswick Cellulose, Power Boiler 4 (F1), Recovery Boiler R407 (M24)
	Georgia Pacific - Cedar Springs, Power Boilers U500, U501, Recovery Boiler R402
	Georgia Pacific - Savannah River Mill, Boilers B001, B002, B003
	Georgia Power - Plant Kraft, Steam Generators (SG) 1, 2, 3
	Georgia Power - Plant Mitchell, SG 3
	Georgia Power - Plant McIntosh, SG 1
	International Paper - Savannah Mill, Power Boiler 13
	Temple-Inland Rome Linerboard, Power Boiler 4
Facilities With Emissions Unit(s) Not Subject to Reasonable Progress Analysis	
	<i>Non-EGUs Subject to BART</i>
	Interstate Paper, Power Boiler F1
	<i>Not Subject to Evaluation Based on Updated Information</i>
	Miller Brewing, Boilers B001, B002
	Mount Vernon Mills, Boilers E U 03, E U 04
	Savannah Sugar Refinery, Boiler U161
	Mohawk Industries, Boilers BL06, BL07
	<i>Exempted With Additional Emission Limits</i>
	Packaging Corporation of America, C E Boiler
	Rayonier Performance Fibers - Jessup Mill, Power Boilers 2, 3, Recovery Furnace 1,2
	Southern States Phosphate and Fertilizer, Sulfuric Acid Plant 2

A. Facilities with Emissions Unit(s) Subject to Reasonable Progress Analysis

The RHR requires that states consider the following factors and demonstrate how these factors were taken into consideration in selecting the RPGs: costs of compliance; time necessary for compliance; energy and non-air quality environmental impacts of compliance; and remaining useful life of any potentially-affected sources. As stated previously, GA EPD performed reasonable progress control analyses for 15 emissions units. The results of GA EPD's analyses are summarized below, followed by EPA's assessment.

1. Georgia Pacific - Brunswick Cellulose

a). Power Boiler 4 (F1)

Georgia Pacific's Brunswick Cellulose facility is located in Glynn County near the Georgia coast. Power Boiler No. 4 is an 800 million British thermal units per hour (MMBtu/hr) boiler that burns primarily No. 6 fuel oil and wood waste, including bark. The boiler is also permitted to burn tire-derived fuel (TDF) and wastewater treatment sludge. The sulfur content of the fuel oil is three percent or less.

Power Boiler 4 at the Brunswick Cellulose facility meets Georgia's minimum threshold for reasonable progress control evaluation. The unit contributes to the total sulfate visibility impairment at two Class I areas (i.e., approximately 12.6 percent at Wolf Island and 3.9 percent at Okefenokee). The State noted in its SIP that these contributions are the highest level of visibility impairment contribution to any Class I area caused by any single emissions unit that GA EPD analyzed. The 2018 projected SO₂ emissions developed by VISTAS are 1,642 tpy. However, the boiler had already reduced emissions to approximately 1,099 tpy due to a 2002 modification achieving higher efficiency.

The reasonable progress control analysis reviewed wet flue gas desulfurization (FGD), in-duct sorbent injection, and a limitation on fuel oil usage coupled with lower sulfur content fuel oil (2.2 percent and 1.0 percent sulfur fuel oil). Of these control measures, the fuel oil changes could take place prior to 2012 and the wet FGD and in-duct sorbent injection could be installed before 2013. The remaining useful life of the unit extends past 2018 and past the control equipment amortization period. The wet FGD would have an impact on water usage and wastewater discharge, and in-duct sorbent injection would result in additional solid waste. The company did not identify any significant energy impacts for any of the options.

Of the control options considered, both in-duct sorbent injection and a switch to 1.0 percent sulfur fuel oil coupled with a five million gallon-per-year oil usage limit were considered reasonably cost effective. The costs are \$3,562 per ton of SO₂ removed (\$/ton SO₂) and \$20.7 million per inverse megameter (MM/Mm-1) at Wolf Island for in-duct sorbent injection, and \$3,228/ton SO₂ and \$18.8 MM/Mm-1 at Wolf Island for 1.0 percent sulfur fuel oil. These controls were considered cost effective due to the relatively high visibility impact on two Class I areas and the fact that neither of these Class I areas are projected to be clearly at or below the glidepath. Both in-duct sorbent injection and 1.0 percent sulfur fuel oil achieve approximately the same amount of SO₂ emissions reductions (769 tpy for sorbent injection and 731 tpy for 1.0 percent sulfur fuel oil) from the current emissions level of 1,099 tpy SO₂. Implementation of the more cost effective of these two options would reduce SO₂ emissions to 368 tons of SO₂ per 12-consecutive months (i.e., 1,099 tpy – 731 tpy = 368 tpy SO₂).

Supplemental information provided by the facility indicated that the two controls deemed to be reasonable would control emissions from oil combustion but would not affect SO₂ emissions from combustion of wood waste and TDF. The facility requested an allowance for an additional 200 tons of emissions based on calculations of historical emissions from wood waste and TDF. This request was also supported by the facility's assertion that the sulfur content of locally available TDF may be above what has been burned historically. GA EPD concurred with the facility's request and established an SO₂ emissions limit in the facility's title V permit for the power boiler of 568 tpy SO₂ (368 + 200 = 568 tpy) for reasonable progress with a compliance date of 2012. The revised permit is included in Appendix M of the Georgia regional haze submittal.

b). Recovery Boiler R407 (M24)

Recovery Boiler R407 (M24) contributes approximately 1.3 percent to the total sulfate visibility impairment at the Wolf Island Wilderness Area. The 2018 projected SO₂ emissions are 193 tpy. Georgia Pacific's reasonable progress control analysis found combustion control and wet FGD to be the only technically feasible control options. The company stated that emissions of SO₂ of 38 parts per million (ppm), as measured in a 2006 stack test, are too low of a load for effective operation of a FGD. Therefore, the company ruled out this control technology.

Combustion control, the other technically feasible control option, is already included in the boiler design. Because this emissions unit only contributes to visibility impairment at one Class I area and has a relatively low 2018 projected emissions level, the State determined that no additional controls are required for reasonable progress for the Recovery Boiler R407 at Georgia Pacific - Brunswick Cellulose.

2. Georgia Pacific - Cedar Springs

a). Power Boiler U500 ("Power Boiler 1") and Power Boiler U501 ("Power Boiler 2")

Power Boilers 1 and 2 at the Georgia Pacific - Cedar Springs facility are two nearly identical power boilers. Each of these units contributes approximately 1.1 percent to the total sulfate visibility impairment at the Saint Marks Class I area in Florida. The 2018 projected SO₂ emissions are 1,976 tpy for each boiler.

The reasonable progress control analyses for these units reviewed six options: 1) wet FGD, 2) addition of spray towers and caustic to the existing venturi scrubbers, 3) adding caustic to the existing venturi scrubbers (resulting in a 79 percent SO₂ reduction), 4) in-duct sorbent injection, 5) coal washing, and 6) coal switching. In addition to these control measures, Georgia

Pacific submitted two variations of option 3 as part of their BART exemption modeling request that included the addition of lower amounts of caustic to their existing scrubbers (resulting in approximately a 68 percent and 37 percent SO₂ reduction for these two variations). All of the control options could be installed prior to 2012 except the wet FGD, which could be installed before 2013. All three of the scrubber options (i.e., wet FGD, adding spray towers and caustic to the existing scrubbers, and adding caustic to the existing venturi scrubbers) would generate approximately 15,000 tpy of solid waste. The company did not identify any significant energy impacts associated with the scrubber options. The remaining useful life of the unit extends past 2018 and past the control equipment amortization period.

Out of all the control options considered, adding caustic to the existing venturi scrubber and installing in-duct sorbent injection were considered reasonably cost effective. The costs were \$1,675/ton SO₂ and \$849.2 MM/Mm-1 at the Saint Marks Class I area for adding caustic to the scrubber, and \$1,663/ton SO₂ and \$843.2 MM/Mm-1 at the Saint Marks area for in-duct sorbent injection. These figures were considered cost effective even with a relatively low visibility impact on only one Class I area because the Saint Marks area is not clearly at or below the uniform rate of progress. Since the company submitted control options for three different levels of caustic use (resulting in 79 percent, 68 percent, and 37 percent SO₂ reduction), GA EPD analyzed the information to determine which level of caustic use was considered reasonable. In comparison, in-duct sorbent injection achieves approximately 70 percent SO₂ reduction, which is within the range of control efficiencies for caustic scrubbing. GA EPD concluded that a 70 percent SO₂ reduction was reasonable for this unit. As part of Georgia Pacific's BART exemption modeling, the company proposed SO₂ emissions limits to avoid being subject to BART of 135 pounds of SO₂ per hour (lb SO₂/hr) for each power boiler, along with additional

SO₂ limits on Recovery Boiler R402 (“Recovery Boiler 3”) as discussed below. The State agreed with this limit of 135 lb SO₂/hr, which would result in maximum annual emissions of 591 tpy of SO₂ (a 70 percent reduction from current emissions), and determined that this limit satisfies reasonable progress. The actual annual reduction is expected to be even higher since the power boilers are not anticipated to emit SO₂ at the maximum allowable level for an entire year. A copy of the revised title V permit is included in Appendix M of the Georgia regional haze SIP submittal.

b). Recovery Boiler 3

This unit contributes approximately 0.8 percent to the sulfate visibility impairment at the Saint Marks Class I area. The 2018 projected SO₂ emissions are 1,726 tpy. However, the State notes that Georgia Pacific’s 2006 and 2007 SO₂ emissions were significantly lower than this 2018 projected SO₂ emissions level at 462 and 741 tpy SO₂, respectively. The facility accepted a limit of 350 ppm SO₂ on this unit when firing black liquor solids to avoid being subject to BART.

The reasonable progress control analyses reviewed three additional options: 1) switching from No. 6 residual fuel oil (1.8 percent sulfur) to No. 2 distillate fuel oil (0.5 percent sulfur); 2) switching to lower sulfur No. 6 residual fuel oil (1.0 percent sulfur); and 3) the installation of a new concentrator and new multi-level air system. The company did not provide any indications that any of the control options could not be installed prior to 2012. No negative energy impacts or non-air quality environmental impacts were identified by the company. Remaining useful life of the unit extends past 2018 and past the control equipment amortization periods.

Of the control options considered, none were considered reasonable because their implementation would have a visibility impact of less than 0.01 inverse megameter (Mm⁻¹) on a single Class I area. Therefore, no additional controls were required for reasonable progress for Recovery Boiler 3 at the Georgia Pacific – Cedar Springs facility.

3. Georgia Pacific - Savannah River Mill, Boilers B001, B002, and B003

Boilers B001, B002, and B003 at the Georgia Pacific - Savannah River Mill facility are three relatively similar boilers, with B002 and B003 being almost identical. The emissions units exceed Georgia's minimum threshold for reasonable progress evaluation at one Class I area (approximately 1.1 percent, 0.9 percent, and 0.8 percent of the total sulfate visibility impairment at the Wolf Island Wilderness Area for B001, B002, and B003, respectively). The 2018 projected SO₂ emissions for B001, B002, and B003 are 1,659 tpy, 1,195 tpy, and 1,190 tpy, respectively. All three of these boilers are relatively well controlled, re-circulating fluidized bed boilers with limestone injection in the combustion chamber. B001 currently achieves approximately 87 percent SO₂ removal and Boilers B002 and B003 achieve approximately 90 percent SO₂ removal.

The reasonable progress control analyses reviewed wet FGD, circulating fluidized bed scrubber, switching from petroleum coke to coal, increased limestone injection, and rotating opposed fire air. Of all the proposed changes, only increased limestone injection could occur prior to 2012. All other control measures could not be installed until after 2012, although estimated control dates were not provided. Wet FGD controls would result in increased water use and wastewater discharges. No significant energy impacts were identified by the company. Remaining useful life of the emissions units extended past 2018 and past the control equipment

amortization periods. Increased limestone injection would result in increased solid waste generation. Georgia Pacific conducted trial operations with increased limestone injection rates and found that SO₂ removal could only be increased by an additional two percent (from 87 percent to 89 percent for B001 and from 90 percent to 92 percent for B002 and B003). Revised cost estimates were also derived from the trial operations.

Of the control options considered, none were considered reasonable given their low control efficiencies and a visibility impact of less than 0.01 Mm-1 on a single Class I area that would result from their implementation. Therefore, no additional controls were required for reasonable progress.

4. Georgia Power - Plant Kraft, SGs 1, 2, and 3

Emissions units SG 1, 2, and 3 at Georgia Power - Plant Kraft are three coal-fired steam generating units (i.e., boilers) rated at 50, 54, and 104 MW, respectively. Units 1 and 2 each contribute to the total sulfate visibility impairment at the Wolf Island Class I area by approximately 0.5 percent. Unit 3 was initially determined to contribute to the total sulfate visibility impairment at three Class I areas (approximately 3.3 percent at Wolf Island, 0.9 percent at Okefenokee, and 0.8 percent at Cape Romain). However, with projected reductions in SO₂ emissions by 2018, the visibility impacts on Okefenokee and Cape Romain Class I areas from Units 1, 2, and 3 are expected to drop below Georgia's minimum threshold for reasonable progress evaluation, and the visibility impact at Wolf Island should drop below two percent. The 2018 projected SO₂ emissions for Units 1, 2, and 3 were initially estimated by VISTAS at 691 tpy, 704 tpy, and 4,474 tpy, respectively. As part of the supporting documentation for the reasonable progress control analyses, Georgia Power provided projected heat input through 2018

for these units, which indicates that SO₂ emissions for Units 1, 2, and 3 will be 632 tpy, 889 tpy, and 2,455 tpy, respectively. While the heat inputs provided by Georgia Power for Units 1 and 2 are similar to the VISTAS 2018 projections, Georgia Power's projection for Unit 3 represents a 45 percent reduction in heat input and SO₂ emissions from the VISTAS projections. This was explained by Georgia Power as the result of additional capacity coming on-line elsewhere between 2010 and 2017. The reduction in heat input for Plant Kraft is expected to occur around 2015. GA EPD utilized these revised heat inputs in conducting the reasonable progress control analyses, and GA EPD plans to verify the heat input reduction during development of the next regional haze SIP (due in 2018).

The following control measures were analyzed for the four statutory factors for all three units: wet FGD, coal switching (i.e., using a coal with a lower sulfur content), and coal washing (i.e., mechanically removing pyritic sulfur from powdered coal by a flotation process, which does not separate organic sulfur from the coal). Wet FGD could not be installed until 2016 because of required control device installations scheduled up until 2015 in Georgia Power's system. The company did not address the implementation time for the other control options, so GA EPD assumed the controls could be implemented by January 1, 2012. All three control options would require additional energy usage. Wet FGD and coal washing would result in increased water usage and wastewater discharges as well as additional solid waste generation. The remaining useful life of the units extends past 2018 and past the control equipment amortization periods.

The cost effectiveness of wet FGD and coal switching were \$3,216 to \$8,161/ton SO₂ and \$56.9 MM to \$144.5 MM/Mm-1 for wet FGD and \$4,041 to \$4,306/ton SO₂ and \$71.5 MM/Mm-1 for coal switching. Coal washing cost effectiveness was \$1,839 to \$1,847/ton SO₂

and \$32.5 to \$32.7 MM/Mm-1; the control efficiency is six percent. Regarding non-air environmental impacts, the company indicated that coal washing could possibly reduce boiler efficiency, would use up to 7,500 gallons (at Unit 3) per day of water, would result in acidic wastewater requiring treatment, and would result in coal refuse in the amount of approximately five percent of the total coal consumption. Emissions reductions from these control options are projected to achieve very little visibility improvement at the Wolf Island Wilderness Area.

Based on the control efficiency of coal washing, the negative non-air environmental impacts, and the visibility impact of less than 0.01 Mm-1, the State determined that this control option is not reasonable. The State eliminated coal switching and FGD from consideration due to the cost effectiveness considerations. Based on the above considerations, no additional controls were required for any of the Georgia Power - Plant Kraft units.

5. Georgia Power - Plant McIntosh, SG 1

Emissions unit SG 1 at Georgia Power - Plant McIntosh is a coal-fired steam generating unit rated at 178 MW. The 2018 projected SO₂ emissions were initially estimated by VISTAS at 7,015 tpy. As part of the supporting documentation for the reasonable progress control analyses, Georgia Power provided projected heat input through 2018 for this unit. Those projections indicate that SO₂ emissions will drop to 1,860 tpy by 2018. Georgia Power's projection represents a 73 percent reduction in heat input and SO₂ emissions. This was explained by Georgia Power as a result of additional capacity coming on line elsewhere between 2010 and 2017. The State initially determined that this unit impacts visibility at five Class I areas (4.1 percent at Wolf Island, 1.2 percent at Okefenokee, 0.6 percent at Saint Marks, 1.5 percent at Cape Romain, and 0.7 percent at Swanquarter). However, with the projected reduction in SO₂

emissions by 2018, the visibility impacts on all of these areas except Wolf Island are expected to drop below Georgia's 0.5 percent evaluation threshold, and the impact at Wolf Island is expected to drop to approximately one percent. The reduction in heat input for Plant McIntosh is to occur between around 2011 and 2016. GA EPD utilized this revised SO₂ emission rate in conducting the reasonable progress control analyses. GA EPD plans to verify the heat input reduction during development of the next regional haze SIP.

Georgia Power analyzed the following control measures: wet FGD, coal switching, and coal washing. Wet FGD could not be installed until 2016 because required control device installations are scheduled up until 2015 in Georgia Power's system. The company did not address the time necessary for compliance for the other control options so GA EPD assumed the controls could be implemented by January 1, 2012. All three control options would require additional energy usage. Wet FGD and coal washing would result in increased water usage and wastewater discharges as well as additional solid waste generation. The remaining useful life of the units extends past 2018 and past the control equipment amortization periods. The cost effectiveness of all the control operations is \$7,131/ton SO₂ and \$118.5MM/Mm-1 for wet FGD, \$4,306/ton SO₂ and \$71.5MM/Mm-1 for coal switching, and \$5,334/ton SO₂ and \$91.9MM/Mm-1 for coal washing. Based on these factors, GA EPD required no additional controls for SG 1 at Georgia Power's Plant McIntosh.

6. Georgia Power - Plant Mitchell, SG 3

SG 3 at Georgia Power's Plant Mitchell is a coal-fired steam-generating unit rated at 163 MW and is the only remaining operational boiler at Plant Mitchell. The 2018 projected SO₂ emissions were initially estimated by VISTAS at 4,930 tpy. As part of the supporting

documentation for the reasonable progress control analyses, Georgia Power provided projected heat input through 2018 for this unit. Those projections indicate that SO₂ emissions will drop to 1,189 tpy by 2018. The State initially determined this unit to impact the total sulfate visibility impairment at two Class I areas at approximately 0.8 percent at the Okefenokee Wilderness Area and approximately 2.7 percent at the Saint Marks Class I area in Florida. However, with the projected reduction in SO₂ emissions by 2018, the visibility impact at Okefenokee is expected to drop below Georgia's 0.5 percent reasonable progress evaluation threshold and the impact on Saint Marks is predicted to drop to below one percent. Georgia Power's projection represents a 76 percent reduction in heat input and SO₂ emissions. This was explained by Georgia Power as a result of additional capacity coming online elsewhere else starting in 2010. The reduction in heat input for Plant Mitchell is to occur between around 2008 and 2010. GA EPD utilized this revised SO₂ emissions rate in conducting the reasonable progress control analyses. GA EPD plans to verify the heat input reduction during the regional haze periodic progress review described in section IV.G of this action.

Georgia Power analyzed wet FGD and coal switching as possible control measures at SG

3. Wet FGD could not be installed until 2016 because required control device installations are scheduled up until 2015 in Georgia Power's system. The company did not address the time necessary for compliance for coal switching so GA EPD assumed this control could be implemented by January 1, 2012. Both control options would require additional energy usage. Georgia Power did not indicate any additional water use, wastewater discharge, or solid waste generation issues for any of the control options. The remaining useful life of the units extends past 2018 and past the control equipment amortization periods. The cost effectiveness for wet FGD was \$9,119/ton SO₂ and \$148.5 MM/Mm-1, and the cost effectiveness for coal switching

was \$2,347/ton SO₂ and \$38.2 MM/Mm-1; the control efficiency was at 43 percent. Based on these factors, including the projected significant utilization drop within the next few years, Georgia required no additional controls for SG 3 at Georgia Power - Plant Mitchell.

7. International Paper - Savannah Mill, Power Boiler 13

International Paper's Savannah Mill Power Boiler 13 is a 1,280 MMBtu/hr coal, oil, and wood waste-fired boiler. The unit also combusts both low-volume high-concentration (LVHC) and high-volume low-concentration (HVLC) non-condensable gases from the pulping process as well as stripper off-gas (SOG) from the stripper used to control hazardous air pollutant (HAP) emissions from wastewater streams. The 2018 projected SO₂ emissions are 8,578 tpy with approximately 1,944 tpy of this amount coming from the combustion of LVHC, HVLC, and SOG. The State identified this unit as significantly contributing to sulfate visibility impairment at five Class I areas (approximately 6.4 percent at Wolf Island, 1.7 percent at Okefenokee, 0.7 percent at the Saint Marks area in Florida, 1.6 percent at the Cape Romain area in South Carolina, and 0.9 percent at the Swanquarter area in North Carolina). The State noted in its SIP that this is the highest number of Class I areas significantly impacted by any single emissions unit of all those reviewed by Georgia.

The reasonable progress control analysis reviewed the following control options: 1) wet FGD (packed tower), 2) FGD (wet limestone spray tower), 3) semi-dry lime spray tower, 4) fuel switching to natural gas, 5) dry sorbent injection, and 6) a stand-alone regenerative thermal oxidizer (RTO) with SO₂ scrubbing for the control of LVHC, HVLC, and SOG. The RTO control option was presented as three different options for LVHC, HVLC, and SOG combustion. International Paper also suggested an SO₂ reduction of 2,000 tpy (a reduction in the SO₂

emissions limit from 8,758 tpy to 6,758 tpy) as a control option that would provide maximum flexibility for compliance. Except for the 2,000 tpy SO₂ reduction alternative, all of these control options could be implemented by 2012. International Paper requested a 2016 compliance date for the 2,000 tpy SO₂ reduction alternative in order for the company to take into consideration any reductions that will occur as a result of the Industrial Boiler MACT and the uncertainty surrounding the final requirements of that standard.

The remaining useful life of the unit extends past 2018 and past the control equipment amortization period. The wet FGD and all three RTO sub-options increased water usage and wastewater discharge. GA EPD evaluated the potential water usage and wastewater discharges associated with these controls. One additional consideration was to ensure that there would be no additional dissolved oxygen load on the Savannah River due to a problem with the dissolved oxygen load in the Savannah River. Because of strict limitations on any additional dissolved oxygen load to the river, any projects that could possibly increase dissolved oxygen load were not considered reasonable at this time. Based on the type of chemicals that would be associated with effluent from a wet FGD (packed tower option) and the semi-dry lime spray tower, GA EPD eliminated these options from further consideration because they could potentially increase dissolved oxygen load. FGD (wet limestone spray tower), semi-dry lime spray tower, and dry sorbent injection also resulted in additional solid waste generation. There were energy impacts associated with all but the fuel switching option. These energy costs were factored into the overall control cost effectiveness.

Regarding the company's cost effectiveness estimates, GA EPD's review indicated that the cost estimates for a packed tower wet FGD and wet FGD limestone spray tower were higher than expected based on the following factors: the costs per actual cubic feet per minute are about

four times higher than other units of comparable size, the company's estimate is three to eight times higher than results from EPA cost estimation software, and International Paper used a conservative retrofit factor with a cost estimation model not recommended by EPA. In a letter to International Paper dated December 27, 2007, GA EPD requested site-specific cost analyses for these control options. In that letter, GA EPD stated that if site-specific estimates were not provided, control option recommendations would be made with the understanding that the cost estimates may be overstated. In response, International Paper chose not to provide site-specific cost estimates as requested. GA EPD completed its evaluations and determined that the cost effectiveness of the FGD - wet limestone spray tower (\$4,391/ton SO₂) was not cost effective in this case. Wet FGD – packed tower was not considered reasonable because of the possible impact on dissolved oxygen load to the Savannah River. Fuel switching to natural gas (\$9,506/ton SO₂), and dry sorbent injection (\$5,223/ton SO₂) were determined not to be reasonable because of cost effectiveness.

Another cost effective control option that GA EPD evaluated is an emissions limit of 6,758 tpy SO₂ proposed by the company. The 6,758 tpy SO₂ limit was determined by reducing the projected 2018 SO₂ emissions level of 8,758 tpy SO₂ by 2,000 tons. GA EPD reviewed recent SO₂ emissions data and determined that the projected 8,758 tpy SO₂ level is reasonable. No specific emissions reduction methodologies were associated with this control option. However, certain control methodologies are under consideration. A compliance date of 2016 was proposed in order to take into consideration any controls that will be required under EPA's Industrial Boiler MACT currently under development (discussed in section IV.C.1). A 2016 compliance date should provide sufficient time for the MACT to be proposed and promulgated, provide the three years required for compliance with the standard, and provide time to determine

an appropriate method for complying with the 6,758 tpy SO₂ emissions limit for Power Boiler 13 following compliance with this MACT standard.

Of the control options considered, GA EPD determined that the 2,000 tpy SO₂ reduction alternative, which results in an emissions limit of 6,758 tpy SO₂, was reasonably cost effective. This limit will include SO₂ emissions resulting from the combustion of LVHC, HVLC, and SOG, whether they are combusted in Power Boiler 13 or some other combustion device. In order to provide flexibility for the facility, an emissions limit of 6,578 tons SO₂/12-consecutive months is required for Power Boiler 13 as a requirement for reasonable progress with a compliance date of 2016. A copy of the revised title V permit was included in Appendix M of the Georgia regional haze submittal.

8. Temple-Inland Rome Linerboard, Power Boiler 4

Temple-Inland Rome Linerboard's Power Boiler 4 is a 565 MMBtu/hr coal- and oil-fired boiler. The State identified this unit as significantly contributing to the total sulfate visibility impairment at two Class I areas (4.4 percent at Cohutta and 1.0 percent at Joyce Kilmer/Slickrock Wilderness Area in North Carolina/Tennessee).

The company's reasonable progress control analysis reviewed: a) two wet FGD configurations (magnesium enhanced lime) and limestone forced oxidation; b) dry FGD (lime absorbent); c) fuel switching; and d) dry sorbent injection. All of these control options could be implemented by 2012. The remaining useful life of the power boiler extends past 2018 and past the control equipment amortization period.

The wet FGD options had an impact on water usage. GA EPD notes that the mill had sufficient capacity within their currently permitted water withdrawal permit to adequately handle

the increased water use associated with wet FGD. All of the control options resulted in additional solid waste generation, and there were energy impacts associated with all of the control options. These energy costs were factored into the overall control cost effectiveness.

The State determined that none of the control options considered for Power Boiler 4 are reasonable at this time. A key factor in determining what was considered “reasonable” for reasonable progress requirements for this source is that the affected Class I areas impacted by this unit are predicted to meet the uniform rate of progress in 2018 with controls that are already required. This determination may be revisited at the periodic SIP progress review or when determining future RPGs for subsequent implementation periods.

9. EPA Assessment

As noted in EPA’s Reasonable Progress Guidance, the states have wide latitude to determine appropriate additional control requirements for ensuring reasonable progress, and there are many ways for a state to approach identification of additional reasonable measures. States must consider the four statutory factors, at a minimum, in determining reasonable progress, but states have flexibility in how to take these factors into consideration.

GA EPD applied the methodology developed by VISTAS for identifying appropriate sources to be considered for additional controls under reasonable progress for the implementation period addressed by this SIP, which ends in 2018. Using this methodology, GA EPD first identified those emissions and emissions units most likely to have an impact on visibility in the State’s and neighboring Class I areas. Units with emissions of SO₂ with a relative contribution to total sulfate visibility impairment of at least 0.5 percent contribution at any Class I area were then subject to a reasonable progress control analysis, except for utilities

subject to Georgia's state rule 391-3-1-.02(13), "Clean Air Interstate Rule SO₂ Annual Trading Program," that only impacted visibility at Class I areas projected to be below the uniform rate of progress line.

Having reviewed GA EPD's methodology and analyses presented in the SIP materials prepared by GA EPD, EPA is proposing to approve Georgia's reasonable progress determinations. EPA preliminarily agrees with the State's approach of identifying the key pollutants contributing to visibility impairment at its Class I areas, and proposes to consider the State's methodology to identify sources of SO₂ most likely to have an impact on visibility on any Class I area to be an appropriate methodology for narrowing the scope of the State's analysis. In general, EPA also proposes to find Georgia's evaluation of the four statutory factors for reasonable progress to be reasonable and believes that the Georgia regional haze SIP ensures reasonable progress. EPA also proposes that, given the emissions reductions resulting from CAIR, Georgia's BART determinations, the measures in nearby states, and the visibility improvements projected for the affected Class I areas, these emissions reductions are in excess of that needed to be on the glidepath for the Cohutta Wilderness Area, and are close to the glidepaths for the Wolf Island and Okefenokee Wilderness Areas.

In addition, EPA proposes to find that Georgia fully evaluated all control technologies available at the time of its analysis and applicable to these facilities. EPA also proposes to find that Georgia consistently applied its criteria for reasonable compliance costs, and where it diverged, the State included justification for the other factors influencing the control determination.

B. Facilities With Emissions Unit(s) Not Subject to Reasonable Progress Analysis

1. EGUs Subject to CAIR

In concert with VISTAS, GA EPD applied its reasonable progress methodology and identified 20 Georgia Power Company emissions units at seven facilities that contributed greater than 0.5 percent of the total sulfate visibility impairment at a Class I area: 1) Plant Bowen SG 01, SG 02, SG 03, SG 04; 2) Plant Hammond SG 04; 3) Plant Mitchell SG 03; 4) Plant Scherer SG 01, SG 02, SG 03, SG 04; 5) Plant Yates SG 02, SG 03, SG 04, SG 05, SG 06, SG 07; 6) Plant Kraft SG 01, SG 02, SG 03; and 7) Plant McIntosh SG 01. Georgia, as part of its long-term reasonable progress analysis to consider potential sources contributing to visibility impairment, examined other CAA requirements such as CAIR and Georgia state rule 391-3-1-.02(13). Under Georgia's rule, SO₂ emissions from Georgia EGUs will be capped at 149,140 tons in 2015, a 70 percent reduction from 2002 actual emissions. In addition, a 70 percent reduction of SO₂ emissions is expected during this time period across all CAIR-affected EGUs in 28 eastern states due to CAIR. Since EGUs will be reducing their SO₂ emissions by approximately 70 percent through these programs and based on detailed analyses in EPA's May 2, 2005, CAIR, GA EPD concluded that additional EGU control during this time period is not reasonable for sources that significantly contribute to visibility impairment at Class I areas that are clearly projected to meet or exceed the uniform rate of progress in 2018. However, for sources that significantly contribute to visibility impairment at Class I areas not clearly meeting the uniform rate of progress (Okefenokee and Wolf Island), GA EPD considered additional controls at CAIR-affected units. The Cohutta Class I area is expected, based on modeling, to clearly meet/exceed the glidepath in 2018. GA EPD has therefore concluded that CAIR constitutes reasonable measures for Georgia EGUs that significantly impact visibility in Cohutta

during this first assessment period (between baseline and 2018). Thus, GA EPD concluded that no additional controls beyond CAIR are reasonable for the remaining four identified Georgia Power facilities (Plants Bowen, Hammond, Scherer, and Yates) for SO₂ for the first implementation period ending in 2018. Because the Okefenokee, Wolf Island, and Saint Marks Class I areas are not expected to clearly meet or exceed the glidepath in 2018, controls required under CAIR have not been deemed to constitute reasonable measures for Georgia EGUs that significantly impact visibility in these Class I areas (Georgia Power's Plants Mitchell, Kraft and MacIntosh).

2. Non-EGUs Subject to BART

One of the emissions units considered for reasonable progress control, Interstate Paper's Power Boiler F1, is subject to BART and subsequently was evaluated for BART controls. GA EPD concluded that BART for the power boiler at Interstate Paper is a requirement to burn natural gas only, other than during curtailment periods (i.e., during reduction or discontinuance of supply in natural gas). GA EPD believes that, for this implementation period, the application of BART constitutes reasonable progress for this unit, and thus, is not requiring any additional controls for reasonable progress. As discussed in EPA's Reasonable Progress Guidance, since the BART analysis is based, in part, on an assessment of many of the same factors that must be addressed in establishing the RPG, EPA believes it is reasonable to conclude that any control requirements imposed in the BART determination also satisfy the RPG-related requirements for source review in the first implementation period.¹⁸ Thus, EPA proposes to agree with the State's conclusions that the BART control evaluations satisfy reasonable progress for the first implementation period for Interstate Paper - Power Boiler F1.

¹⁸EPA's Reasonable Progress Guidance, pages 4.2-4-3.

3. Other Emissions Units Not Subject to Preparing a Reasonable Progress Control Analysis

GA EPD requested reasonable progress control analyses from all facilities identified as potentially contributing at least 0.5 percent of the total sulfate visibility impairment at a Class I area. In response to this request, additional information regarding projected 2018 actual emissions was received from a number of sources. As a result of this revised information, seven units at four facilities (Miller Brewing, Boilers B001, B002; Mount Vernon Mills, Boilers E U 03, E U 04; Savannah Sugar Refinery, Boiler U161; and Mohawk Industries, Boilers BL06, BL07) were removed from consideration for additional controls based on an analysis that the emissions units would not contribute 0.5 percent or greater of the total sulfate visibility impairment at any Class I area in 2018.

Due to resource limitations and/or uncertainty regarding future operations, the following three facilities with six emissions units requested emissions limits on their affected units in lieu of performing reasonable progress control analyses: 1) Rayonier Performance Fibers, Power Boilers 2 and 3, Recovery Furnaces 1 and 4; 2) Southern States Phosphate and Fertilizer, Sulfuric Acid Plant 2; and 3) Packaging Corporation of America, C E Boiler. The required emissions limits reduced the sulfate contributions of these units below 0.5 percent of the total sulfate visibility impact on any affected Class I areas.

6. BART

BART is an element of Georgia's LTS for the first implementation period. The BART evaluation process consists of three components: (a) an identification of all the BART-eligible sources, (b) an assessment of whether the BART-eligible sources are subject to BART and (c) a

determination of the BART controls. These components, as addressed by GA EPD, and the State's findings, are discussed as follows.

A. BART-Eligible Sources

The first phase of a BART evaluation is to identify all the BART-eligible sources within the state's boundaries. GA EPD identified the BART-eligible sources in Georgia by utilizing the three eligibility criteria in the BART Guidelines (70 FR 39158) and EPA's regulations (40 CFR 51.301): (1) one or more emissions units at the facility fit within one of the 26 categories listed in the BART Guidelines; (2) the emissions units were not in operation prior to August 7, 1962, and were in existence on August 7, 1977; and (3) these units have the potential to emit 250 tons or more per year of any visibility-impairing pollutant.

The BART Guidelines also direct states to address SO₂, NO_x, and direct PM (including both PM₁₀ and PM_{2.5}) emissions as visibility-impairment pollutants and to exercise judgment in determining whether VOC or ammonia emissions from a source impair visibility in a Class I area. *See* 70 FR 39160. VISTAS modeling demonstrated that VOC from anthropogenic sources and ammonia from point sources, except for potentially one ammonia source, are not significant visibility-impairing pollutants in Georgia, as discussed in section IV.C.3 of this action. Based on the VISTAS modeling, GA EPD determined that ammonia emissions from the State's point sources are not anticipated to cause or contribute significantly to any impairment of visibility in Class I areas and should be exempt for BART purposes. The only ammonia source in Georgia that was identified by VISTAS as a possible contributor to visibility impairment, PCS Nitrogen, adequately addressed its contribution in its BART exemption modeling analysis.

B. BART-Subject Sources

The second phase of the BART evaluation is to identify those BART-eligible sources that may reasonably be anticipated to cause or contribute to visibility impairment at any Class I area, i.e., those sources that are subject to BART. The BART Guidelines allow states to consider exempting some BART-eligible sources from further BART review because they may not reasonably be anticipated to cause or contribute to any visibility impairment in a Class I area. Consistent with the BART Guidelines, Georgia required each of its BART-eligible sources to develop and submit dispersion modeling to assess the extent of their contribution to visibility impairment at Class I areas in surrounding states.

1. Modeling Methodology

The BART Guidelines allow states to use the CALPUFF¹⁹ modeling system (CALPUFF) or another appropriate model to predict the visibility impacts from a single source on a Class I area, and therefore, to determine whether an individual source is anticipated to cause or contribute to impairment of visibility in Class I areas, i.e., “is subject to BART.” The Guidelines state that EPA believes that CALPUFF is the best regulatory modeling application currently available for predicting a single source’s contribution to visibility impairment (70 FR 39162). Georgia, in coordination with VISTAS, used the CALPUFF modeling system to determine whether individual sources in the State are subject to BART.

¹⁹ Note that EPA’s reference to CALPUFF encompasses the entire CALPUFF modeling system, which includes the CALMET, CALPUFF, and CALPOST models and other pre and post processors. The different versions of CALPUFF have corresponding versions of CALMET, CALPOST, etc. which may not be compatible with previous versions (e.g., the output from a newer version of CALMET may not be compatible with an older version of CALPUFF). The different versions of the CALPUFF modeling system are available from the model developer on the following website: <http://www.src.com/verio/download/download.htm>.

The BART Guidelines also recommend that states develop a modeling protocol for making individual source attributions and suggest that states may want to consult with EPA and their RPO to address any issues prior to modeling. The VISTAS states, including Georgia, developed a “Protocol for the Application of CALPUFF for BART Analyses.” Stakeholders, including EPA, FLMS, industrial sources, trade groups, and other interested parties, actively participated in the development and review of the VISTAS protocol.

VISTAS developed a post-processing approach to use the new IMPROVE equation with the CALPUFF model results so that the BART analyses could consider the old and new IMPROVE equations. GA EPD sent a letter and supplemental e-mail to EPA justifying the need for this post-processing approach, and the EPA Region 4 Regional Administrator sent the State a letter of approval dated September 11, 2008. Georgia’s justification included a method to process the CALPUFF output and a rationale on the benefits of using the new IMPROVE equation. The State’s description of the new post-processing methodology and the State and Region 4 letters are located in Appendices H.9a, H.9b, and H.9c, respectively, of the Georgia regional haze SIP submittal and can be accessed at www.regulations.gov using Docket ID No. EPA-R04-OAR-2010-0936.

2. Contribution Threshold

For states using modeling to determine the applicability of BART to single sources, the BART Guidelines note that the first step is to set a contribution threshold to assess whether the impact of a single source is sufficient to cause or contribute to visibility impairment at a Class I area. The BART Guidelines state that “[a] single source that is responsible for a 1.0 deciview change or more should be considered to ‘cause’ visibility impairment.” The BART Guidelines

also state that “the appropriate threshold for determining whether a source ‘contributes to visibility impairment’ may reasonably differ across states,” but, “[a]s a general matter, any threshold that you use for determining whether a source ‘contributes’ to visibility impairment should not be higher than 0.5 deciviews.” The Guidelines affirm that states are free to use a lower threshold if they conclude that the location of a large number of BART-eligible sources in proximity of a Class I area justifies this approach.

Georgia used a contribution threshold of 0.5 deciview for determining which sources are subject to BART and concluded that the threshold of 0.5 deciview was appropriate in this situation. Georgia determined that, considering the results of the visibility impacts modeling conducted, a 0.5 deciview threshold was appropriate and a lower threshold was not warranted for the following reasons. There are a limited number of BART-eligible sources in close proximity to each of the State’s Class I areas, and the overall impact of the BART-eligible sources on visibility in nearby Class I areas is relatively minimal. In addition, the results of the visibility impacts modeling demonstrated that the majority of the individual BART-eligible sources had visibility impacts well below 0.5 deciview. As stated in the BART Guidelines, where a state concludes that a large number of these BART-eligible sources within proximity of a Class I area justify a lower threshold, it may warrant establishing a lower contribution threshold. *See* 70 FR 39161-39162 (July 6, 2005). EPA proposes to concur with Georgia that the overall impacts of these sources are not sufficient to warrant a lower contribution threshold and that a 0.5 deciview threshold was appropriate in this instance.

3. Identification of Sources Subject to BART

Georgia identified 24 facilities with BART-eligible sources. All of Georgia's 24 BART-eligible sources were required by the State to submit exemption-modeling demonstrations. Georgia found that two of its BART-eligible sources (Interstate Paper and Georgia Power - Plant Bowen) had modeled visibility impacts of more than the 0.5 deciview threshold for BART exemption. Therefore, these two facilities are subject to BART and submitted State permit applications including their proposed BART determinations.

Of the 22 exempted BART-eligible sources, two (Lafarge Building Materials and International Paper – Savannah) were exempted because they met EPA's model plant exemption criteria in the BART Guidelines (70 FR 39162-39163), and one, Georgia Pacific - Cedar Springs, was able to demonstrate exemption from BART by accepting SO₂ emissions limits on Power Boilers 1 and 2 (135 lb SO₂/hr each) and on Recovery Boiler 3 (350 ppm). These limits result in a 0.499 deciview impact at the Saint Marks Class I area and a 0.306 deciview impact at the Okefenokee Class I area. The remaining 19 sources demonstrated that they are not subject to BART by modeling less than a 0.5 deciview visibility impact at the affected Class I areas. For the non-EGU BART-eligible sources, this modeling involved emissions of NO_x, SO₂, and PM₁₀ as applicable to individual facilities.

Ten of Georgia's BART-eligible sources are facilities with EGUs. These units are subject to CAIR. Because Georgia relied on CAIR to satisfy BART for SO₂ and NO_x for its EGUs in CAIR, in accordance with 40 CFR 51.308(e)(4), Georgia's EGUs were allowed to submit BART exemption modeling demonstrations for PM emissions only. All EGUs other than Georgia Power - Plant Bowen demonstrated that their PM₁₀ emissions do not contribute to

visibility impairment in any Class I area. Table 5 identifies the 24 BART-eligible sources located in Georgia.

Table 5: Georgia BART-Eligible and Subject-to-BART Sources

Facilities With Unit(s) Subject to BART
Georgia Power – Plant Bowen Interstate Paper, LLC
Facilities With Unit(s) Not Subject to BART
<p><i>EGU CAIR and BART Modeling (PM only) Exempt Sources²⁰</i> Georgia Power – Plant Branch Georgia Power – Plant Hammond Georgia Power – Plant McDonough Georgia Power – Plant Mitchell Georgia Power – Plant Scherer Georgia Power – Plant Wansley Georgia Power – Plant Yates Georgia Power – Plant Kraft Georgia Power – Plant McIntosh</p> <p><i>Non-EGUs Exempt with Additional Model Based Emission Limits</i> Georgia Pacific – Cedar Springs</p> <p><i>Non-EGUs Exempt using Model Plant Criteria</i> Lafarge Building Materials (Blue Circle Cement – Atlanta Plant) International Paper – Savannah</p> <p><i>Non-EGU BART Modeling Exempt</i> Chemical Products Corporation DSM Chemicals, North America International Paper – Augusta Georgia Pacific – Brunswick Cellulose Owens Corning PCA – Valdosta (Tenneco Packaging, Inc.) PCS Nitrogen Prayon, Inc. Rayonier (Rayonier ITT, Inc.) Tronox (Kerr – McGee / Kemira)</p>

²⁰ EGUs were only evaluated for PM emissions. Georgia relied on CAIR to satisfy BART for SO₂ and NO_x for its EGUs in CAIR, in accordance with 40 CFR 51.308(e)(4). Thus, SO₂ and NO_x were not analyzed.

Prior to the CAIR remand, the State's reliance on CAIR to satisfy BART for NO_x and SO₂ for affected CAIR EGUs was fully approvable and in accordance with 40 CFR 51.308(e)(4). However, the BART assessments for CAIR EGUs for NO_x and SO₂ and other provisions in this SIP revision are based on CAIR. In a separate action, EPA has proposed a limited disapproval of the Georgia regional haze SIP because of deficiencies in the State's regional haze SIP submittal arising from the remand by the D.C. Circuit to EPA of CAIR. *See* 76 FR 82219. Consequently, EPA is not taking action in this proposed rulemaking to address the State's reliance on CAIR to meet certain regional haze requirements.

C. BART Determinations

Two BART-eligible sources (Interstate Paper and Georgia Power - Plant Bowen) had modeled visibility impacts of more than 0.5 deciview and are therefore subject to BART. Consequently, they each submitted to the State permit applications that included their proposed BART determinations.

In accordance with the BART Guidelines, to determine the level of control that represents BART for each source, the State first reviewed existing controls on these units to assess whether these constituted the best controls currently available, then identified what other technically feasible controls are available, and finally, evaluated the technically feasible controls using the five BART statutory factors. The State's evaluations and conclusions, and EPA's assessment, are summarized below.

1. Georgia Power - Plant Bowen

Georgia Power - Plant Bowen has four BART-eligible emissions units that comprise the BART-eligible source. These units are coal fired EGUs, numbers 1, 2, 3, and 4. Each of the EGU's PM emissions are already controlled by electrostatic precipitators (ESPs) and wet FGD. The SO₂ scrubbers were installed on Plant Bowen between 2008 and 2010. Modeling results estimate that visibility impacts from Plant Bowen will exceed 0.5 deciview for at least one Class I area even with the PM emissions reductions that occur from scrubbing. Georgia Power identified the following four potential additional control technologies: a) high voltage power conditioners (juice cans); b) particle agglomerators; c) the combination of juice cans and particle agglomerators; and d) a wet ESP. The company evaluated the cost effectiveness, visibility impacts, and energy and non-air environmental impacts of these control options.

GA EPD determined that no additional control was reasonable for BART for this facility. Wet ESPs are the only control option that resulted in a modeled visibility improvement greater than 0.01 deciviews. Wet ESPs were predicted to improve visibility by approximately 0.14 to 0.16 deciviews for each unit at a cost effectiveness of \$37,107 to \$47,909/ton SO₂. In addition, the wet ESP would consume additional electricity and have non-air environmental impacts. The combination juice can/particle agglomerator option modeled a visibility benefit of 0.01 deciview for each unit at a cost effectiveness of \$12,222 to \$21,914/ton SO₂.

2. Interstate Paper - Power Boiler (F1), Recovery Boiler (F3), and Lime Kiln (F4)

Interstate Paper, located in Riceboro, Georgia, is a paper facility owned and operated by Interstate Resources Incorporated. Interstate Paper is located within 100 kilometers of the Wolf

Island and Okefenokee Wilderness Class I areas. Three of Interstate Paper's units are BART-eligible: Power Boiler (F1), Recovery Boiler (F3), and Lime Kiln (F4).

There are no known energy and non-air quality environmental impacts related to BART determined controls for Interstate paper, LLC. The remaining useful life of the source is at least 10 years.

a). Power Boiler (F1)

Power Boiler (F1) at Interstate Paper was installed in 1968 and has a maximum heat input of 400 MMBtu/hr. It fires natural gas and No. 6 fuel oil. The power boiler, along with the lime kiln, is used as a backup control device for LVHC non-condensable gases (NCGs) generated in the pulp mill. Air pollutants emitted from the power boiler include all three BART relevant pollutants at the following rates: 300.49 tpy SO₂, 409.24 tpy NO_x, and 19 tpy PM.

GA EPD evaluated additional controls for NO_x, SO₂, and particulates. For NO_x, selective catalytic reduction (SCR), low NO_x burners, and low NO_x burner with flue gas recirculation were identified as economically feasible controls. However, they were not considered further for BART because of a visibility improvement of less than 0.01 Mm⁻¹ from NO_x controls on this unit. An ESP and a fabric filter were identified as technically feasible controls for PM emissions reduction, but capital and operating costs caused them to be economically infeasible for BART. The resulting costs per ton of PM reduction ranged from \$19,364 to \$79,470/ton.

For SO₂, fuel switching to natural gas and a wet scrubber were found technically feasible. The cost per ton of SO₂ emissions reductions of each alternative is well within the range that GA EPD considers economically feasible. Hence, both control options were further considered for

BART analysis. Conversion to natural gas has higher control efficiency at lower cost than a wet scrubber. A fuel switch to natural gas has a PM and SO₂ removal efficiency of more than 99 percent. The cost that the facility will incur for such a fuel switch is also relatively less than the addition of control equipment and, along with reduction in PM and SO₂ emissions, NO_x emission reductions will also be achieved. Therefore, GA EPD concluded that BART for the power boiler at Interstate Paper is a requirement to burn natural gas only, other than during curtailment periods (i.e., during reduction or discontinuance of supply in natural gas).

b). Recovery Boiler (F3)

Recovery Boiler (F3) has a low odor, indirect contact evaporator design. The boiler fulfills the essential functions of evaporating the residual moisture from the black liquor solids, burning the organic constituents, producing steam, and producing sodium carbonate and sodium sulfides. Black liquor with more than 68 percent solids is fired into the recovery boiler where the organics from the black liquor are burned off in a reducing atmosphere, generating steam, molten sodium carbonate, and sodium sulfides. Air pollutants emitted from the recovery boiler include all three BART relevant pollutants at the following rates: 2.46 tpy SO₂, 349.92 tpy NO_x, and 0.5 tpy PM. Emissions of the recovery boiler currently pass through a venturi scrubber.

GA EPD evaluated additional controls for particulates, NO_x, and SO₂. No control technology was identified as being technically and economically feasible; therefore, GA EPD concluded that BART for this unit is no additional controls.

c). Lime Kiln (F4)

The lime kiln dries and processes lime mud from the causticizing system by burning fuel oil with a sulfur content no greater than 2.5 percent. The lime kiln is permitted to burn natural gas, No. 6 fuel oil, or limited quantities of used oil. It is equipped with a venturi scrubber to control PM emissions. The lime kiln also serves as a back-up combustion device for LVHC NGCs generated in the pulp mill. Air pollutants emitted from the lime kiln include all three BART relevant pollutants at the following rates: 9.50 tpy SO₂, 149.16 tpy NO_x, and 127.56 tpy PM. Emissions of the lime kiln currently pass through a venturi scrubber.

GA EPD evaluated additional controls for particulates, NO_x, and SO₂. No control technologies were identified as being technically and economically feasible for particulates or SO₂. For NO_x, the low-NO_x burner control option and two selective non-catalytic reduction (SNCR) control options were considered to be economically feasible. However, they were not considered further as retrofit controls because of the visibility improvement of less than 0.01 Mm-1 from NO_x controls on this unit. GA EPD concluded that BART for particulates, NO_x, and SO₂ for this unit is no additional controls.

3. EPA Assessment

EPA proposes to approve Georgia's analyses and conclusions for BART for the Interstate Paper and Georgia Power – Plant Bowen facilities because the analyses were conducted in a manner that is consistent with EPA's BART Guidelines and EPA's *Air Pollution Control Cost Manual*. In addition, EPA believes that the conclusions reflect a reasonable application of EPA's guidance to these sources.

4. Enforceability of BART Limits

The required operational restrictions limiting the power boiler at the Interstate Paper facility to natural gas except during curtailment periods to meet BART were added as permit conditions to the facility's title V operating permit. Georgia EPD included a copy of the permit in the SIP (see Appendix M as revised in GA EPD's technical supplement dated November 19, 2010).

GA EPD also issued an operating permit with BART exemption limits for Georgia Pacific – Cedar Springs. Power Boilers 1 and No. 2 have limits of 135 lbs SO₂/hr each. Recovery Boiler No. 3 has an emissions limit of 350 ppm SO₂ on a dry basis corrected to eight percent oxygen as a 24-hour average when firing black liquor solids. These limits were added to the facility's title V operating permit. A copy of the revised title V permit was included in Appendix M of the Georgia regional haze submittal.

Recordkeeping, monitoring, and testing requirements were included to demonstrate compliance with the BART limits. These requirements are consistent with GA EPD's *Procedures for Testing and Monitoring Sources of Air Pollutants*, and must meet the requirements of Compliance Assurance Monitoring (40 CFR Part 64) or Periodic Monitoring (40 CFR 70.6(3)(i)(B)), as appropriate.

7. RPGs

The RHR at 40 CFR 51.308(d)(1) requires states to establish RPGs for each Class I area within the state (expressed in deciviews) that provide for reasonable progress towards achieving natural visibility. VISTAS modeled visibility improvements under existing federal and state regulations for the period 2004-2018 and additional control measures which the VISTAS states

planned to implement in the first implementation period. At the time of VISTAS modeling, some of the other states with sources potentially impacting visibility at the Georgia Class I areas had not yet made final control determinations for BART and/or reasonable progress, and thus, these controls were not included in the modeling submitted by Georgia. Any controls resulting from those determinations will provide additional emissions reductions and resulting visibility improvement, which give further assurances that Georgia will achieve its RPGs. This modeling demonstrates that the 2018 base control scenario provides for an improvement in visibility better than the uniform rate of progress for the Cohutta Class I area for the most impaired days over the period of the implementation plan and, for all three of Georgia's areas, ensures no degradation in visibility for the least impaired days over the same period. For the Okefenokee and Wolf Island Wilderness Areas, the modeling predicts an improvement in visibility that is slightly slower than the uniform rate of progress by approximately 0.40 deciview for the most impaired days over the period of the implementation plan.

As shown in Table 6 below, Georgia's RPG for the 20 percent worst days (22.80 deciviews in 2018) at the Cohutta Wilderness Area provides greater visibility improvement from the baseline of 30.25 deciviews by 2018 than the uniform rate of progress (25.71 deciviews in 2018). For Okefenokee and Wolf Island, the RPGs for the 20 percent worst days (23.82 deciviews in 2018) provide slightly less visibility improvement from the baseline of 27.13 deciviews by 2018 than the uniform rate of progress (23.42 deciviews in 2018). Also, the RPGs for the 20 percent best days for all three Class I areas in the State provide greater visibility improvement by 2018 than current best day conditions. The regional haze provisions specify that a state may not adopt a RPG that represents less visibility improvement than is expected to result from other CAA requirements during the implementation period. 40 CFR

51.308(d)(1)(vi). Therefore, the CAIR states with Class I areas, like Georgia, took into account emissions reductions anticipated from CAIR in determining their 2018 RPGs.²¹ The modeling supporting the analysis of these RPGs is consistent with EPA guidance at the time.

Table 6: Georgia 2018 RPGs (in deciviews)

Class I Area	Baseline Visibility - 20% Worst Days	2018 RPG - 20% Worst Days (Improvement from Baseline)	Uniform Rate of Progress at 2018 - 20% Worst Days	Baseline Visibility - 20% Best Days	2018 RPG - 20% Best Days (Improvement from Baseline)
Cohutta Wilderness Area	30.25	22.80 (7.45)	25.71	13.77	11.75 (2.02)
Okefenokee Wilderness Area	27.13	23.82 (3.31)	23.42	15.23	13.92 (1.31)
Wolf Island Wilderness Area	27.13	23.82 (3.31)	23.42	15.23	13.92 (1.31)

The RPGs for the Class I areas in Georgia are based on modeled projections of future conditions that were developed using the best available information at the time the analysis was done. These projections can be expected to change as additional information regarding future conditions becomes available. For example, new sources may be built, existing sources may shut down or modify production in response to changed economic circumstances, and facilities may change their emissions characteristics as they install control equipment to comply with new rules. It would be both impractical and resource-intensive to require a state to continually revise its RPGs every time an event affecting these future projections changed.

²¹ Many of the CAIR states without Class I areas similarly relied on CAIR emission reductions within the state to address some or all of their contribution to visibility impairment in other states' Class I areas, which the impacted Class I area state(s) used to set the RPGs for their Class I area(s). Certain surrounding non-CAIR states also relied on emissions reductions due to CAIR in nearby states to develop their regional haze SIP submittals.

EPA recognized the problems of a rigid requirement to meet a long-term goal based on modeled projections of future visibility conditions and addressed the uncertainties associated with RPGs in several ways. EPA made clear in the RHR that the RPG is not a mandatory standard which must be achieved by a particular date. *See* 64 FR at 35733. At the same time, EPA established a requirement for a midcourse review and, if necessary, correction of the states' regional haze plans. *See* 40 CFR 52.308(g). In particular, the RHR calls for a five-year progress review after submittal of the initial regional haze plan. The purpose of this progress review is to assess the effectiveness of emissions management strategies in meeting the RPG and to provide an assessment of whether current implementation strategies are sufficient for the state or affected states to meet their RPGs. If a state concludes, based on its assessment, that the RPGs for a Class I area will not be met, the RHR requires the state to take appropriate action. *See* 40 CFR 52.308(h). The nature of the appropriate action will depend on the basis for the state's conclusion that the current strategies are insufficient to meet the RPGs. Georgia specifically committed to follow this process in the LTS portion of its submittal.

D. Coordination of RAVI and Regional Haze Requirements

EPA's visibility regulations direct states to coordinate their RAVI LTS and monitoring provisions with those for regional haze, as explained in sections III.F and III.G of this action. Under EPA's RAVI regulations, the RAVI portion of a state SIP must address any integral vistas identified by the FLMs pursuant to 40 CFR 51.304. An *integral vista* is defined in 40 CFR 51.301 as a "view perceived from within the mandatory Class I Federal area of a specific landmark or panorama located outside the boundary of the mandatory Class I Federal area." Visibility in any mandatory Class I area includes any integral vista associated with that area.

The FLMs did not identify any integral vistas in Georgia. In addition, the Class I areas in Georgia are neither experiencing RAVI nor are any of its sources affected by the RAVI provisions. Thus, the Georgia regional haze SIP submittal does not explicitly address the two requirements regarding coordination of the regional haze with the RAVI LTS and monitoring provisions. However, Georgia previously made a commitment to address RAVI should the FLMs certify visibility impairment from an individual source.²² EPA finds that this regional haze submittal appropriately supplements and augments Georgia's RAVI visibility provisions to address regional haze by updating the monitoring and LTS provisions as summarized below in this section.

In its January 25, 2010, submittal, GA EPD updated its visibility monitoring program and developed a LTS to address regional haze. Also in this submittal, GA EPD affirmed its commitment to complete items required in the future under EPA's RHR. Specifically, GA EPD made a commitment to review and revise its regional haze implementation plan and submit a plan revision to EPA by July 31, 2018, and every 10 years thereafter. *See* 40 CFR 51.308(f). In accordance with the requirements listed in 40 CFR 51.308(g) of EPA's regional haze regulations and 40 CFR 51.306(c) of the RAVI LTS regulations, GA EPD committed to submit a report to EPA on progress towards the RPGs for each mandatory Class I area located within Georgia and for each mandatory Class I area located outside Georgia that may be affected by emissions from within Georgia. The progress report is required to be in the form of a SIP revision and is due every five years following the initial submittal of the regional haze SIP. Consistent with EPA's monitoring regulations for RAVI and regional haze, Georgia will rely on the IMPROVE network for compliance purposes, in addition to any RAVI monitoring that may be needed in the future.

²² Georgia submitted its visibility SIP revisions addressing RAVI on August 31, 1987, which EPA approved on July 12, 1988, (53 FR 26253).

See 40 CFR 51.305, 40 CFR 51.308(d)(4). Also, the Georgia new source review rules, previously approved in the State's SIP, continue to provide a framework for review and coordination with the FLMs on new sources which may have an adverse impact on visibility in either form (i.e., RAVI and/or regional haze) in any Class I area.

E. Monitoring Strategy and Other Implementation Plan Requirements

The primary monitoring network for regional haze in Georgia is the IMPROVE network. As discussed in section IV.B.2 of this action, there are currently two IMPROVE monitoring sites in Georgia, one for Cohutta and the other monitor for Okefenokee. The Okefenokee monitor is also used to represent visibility conditions at Wolf Island.

IMPROVE monitoring data from 2000-2004 serves as the baseline for the regional haze program, and is relied upon in the State's regional haze submittal. In the submittal, Georgia states its intention to rely on the IMPROVE network for complying with the regional haze monitoring requirement in EPA's RHR for the current and future regional haze implementation periods.

Data produced by the IMPROVE monitoring network will be used nearly continuously for preparing the five-year progress reports and the 10-year SIP revisions, each of which relies on analysis of the preceding five years of data. The Visibility Information Exchange Web System (VIEWS) web site has been maintained by VISTAS and the other RPOs to provide ready access to the IMPROVE data and data analysis tools. Georgia is encouraging VISTAS and the other RPOs to maintain VIEWS or a similar data management system to facilitate analysis of the IMPROVE data.

In addition to the IMPROVE measurements, Georgia also operates a comprehensive PM_{2.5} network of filter-based federal reference method monitors, continuous mass monitors, filter-based speciated monitors, and the continuous speciated monitors listed below. GA EPD will use Southeastern Aerosol Research and Characterization (SEARCH) data from the monitoring sites listed below to further the understanding of both PM_{2.5} and visibility formation and trends in Georgia. The SEARCH monitors provide the following data related to the nature of ambient PM_{2.5}:

- 24-hr PM_{2.5} filter samples, analyzed for mass, ions (sulfate, nitrate, ammonium), organic carbon, elemental (black) carbon, and elements as measured by X-ray fluorescence (XRF);
- 24-hr PM coarse mass, ions, and XRF elements;
- 24-hr gaseous ammonia as collected with an annular denuder;
- Continuous (minute to hourly) PM_{2.5} mass, organic carbon, elemental carbon, ammonium, nitrate, and sulfate; light scattering and light absorption;
- Continuous gaseous ozone, nitric oxide, nitrogen dioxide, total oxidized nitrogen, nitric acid, carbon monoxide, and SO₂; and
- Continuous 10-meter meteorological parameters: wind speed, wind direction, precipitation, temperature, barometric pressure, relative humidity and solar radiation.

In addition, the Clean Air Status and Trends Network (“CASTNet”) provides atmospheric data on the dry deposition component of total acid deposition, ground-level ozone, and other forms of atmospheric pollution.

F. Consultation with States and FLMs

1. Consultation with Other States

In December 2006 and May 2007, the State Air Directors from the VISTAS states held formal interstate consultation meetings. The purpose of these meetings was to discuss the methodology proposed by VISTAS for identifying sources to evaluate for reasonable progress. The states invited FLM and EPA representatives to participate and to provide additional feedback. The Directors discussed the results of analyses showing contributions to visibility impairment from states to each of the Class I areas in the VISTAS region.

GA EPD has evaluated the impact of Georgia sources on Class I areas in neighboring states. The state in which a Class I area is located is responsible for determining which sources, both inside and outside of that state, to evaluate for reasonable progress controls. Because at the time of Georgia's SIP development many of these states had not yet defined their criteria for identifying sources to evaluate for reasonable progress, Georgia applied its AOI methodology to identify sources in the State that have emissions units with impacts large enough to potentially warrant further evaluation and analysis. The State identified eight emissions units in Georgia with a contribution of 0.5 percent or more to the visibility impairment at the following seven Class I areas in five neighboring states: Sipsey Wilderness Area (AL), Saint Marks Wilderness Area (FL), Shining Rock Wilderness Area (NC), Swanquarter Wilderness Area (NC), Great Smoky Mountains National Park (NC/TN), Joyce Kilmer-Slickrock Wilderness Area (NC/TN), and Cape Romain Wilderness Area (SC). Based on an evaluation of the four reasonable progress statutory factors, Georgia determined that there are no additional control measures for these Georgia emissions units that would be reasonable to implement to mitigate visibility impacts in Class I areas in these neighboring states. GA EPD consulted with these states in the VISTAS

region regarding its reasonable progress control evaluations showing no cost-effective controls available for those emissions units in Georgia contributing at least 0.5 percent to visibility impairment at Class I areas in those states. No adverse comments were received from the other VISTAS states. The documentation for these formal consultations is provided in Appendix J of Georgia's SIP.

Regarding the impact of sources outside of the State on Class I areas in Georgia, GA EPD sent letters to Florida, South Carolina, and Tennessee pertaining to emissions units within these states that it believes contribute 0.5 percent or more to visibility impairment in the Georgia Class I areas. At that time, these neighboring states were still in the process of evaluating BART and reasonable progress for their sources. Any controls resulting from those determinations will provide additional emissions reductions and resulting visibility improvement, which gives further assurances that Georgia will achieve its RPGs. Therefore, to be conservative, Georgia opted not to rely on any additional emissions reductions from sources located outside the State's boundaries beyond those already identified in the State's regional haze SIP submittal and as discussed in section IV.C.1 (federal and state controls in place by 2018) of this action.

In 2007, Georgia received a letter sent by the Mid-Atlantic/Northeast Visibility Union (MANE-VU) RPO on behalf of the States of Maine, New Jersey, New Hampshire, and Vermont, inviting Georgia to participate in upcoming state consultation calls and meetings. This letter also requested a control strategy to provide a 28 percent reduction in SO₂ emissions from sources other than EGUs that would be equivalent to MANE-VU's proposed low sulfur fuel oil strategy. Georgia also received individual letters in 2007 from the MANE-VU States of Maine and Vermont stating that based on MANE-VU's analysis of 2002 emissions data, Georgia contributed to visibility impairment to Class I areas in those states. The letters invited Georgia to

participate in future consultation discussions. Georgia sent letters to Maine and Vermont stating that GA EPD was currently in the process of requiring 95 percent SO₂ control on the seven largest coal-fired power plants in Georgia, and that these controls were not fully accounted for in the VISTAS modeling for 2009 and SO₂ AOI analyses for 2018. Georgia affirms it will continue to work through VISTAS to continue discussions with MANE-VU regarding this issue.

GA EPD evaluated both EGU and non-EGU sources to determine what controls are reasonable in this first implementation period. EPA proposes to find that Georgia has adequately addressed the consultation requirements in the RHR and appropriately documented its consultation with other states in its SIP submittal.

2. Consultation with the FLMs

Through the VISTAS RPO, Georgia and the nine other member states worked extensively with the FLMs from the U.S. Departments of the Interior and Agriculture to develop technical analyses that support the regional haze SIPs for the VISTAS states. The proposed regional haze plan for Georgia was out for public comment and FLM review from July to August 2009 and an earlier draft plan was shared for FLM and EPA discussions between December 2008 and February 2009. The FLMs did not submit any significant adverse comments regarding either the State's December 2008 draft or the July 2009 proposed regional haze SIP. The FLMs requested that the State include a discussion regarding the Georgia sources' visibility impacts to out-of-state Class I areas in the draft SIP as well as a discussion on consideration of measures to address construction activity. Additionally, the FLMs offered some clarifications to the text and requested inclusion of the BART exemption modeling reports for eight BART-eligible sources. Georgia addressed the FLMs' comments, including the requested BART modeling exemption

reports and discussion regarding out-of-state Class I area impacts, and also provided written responses explaining its changes.

To address the requirement for continuing consultation procedures with the FLMs under 40 CFR 51.308(i)(4), Georgia stated in its SIP that GA EPD will offer the FLMs an opportunity for consultation on a yearly basis, including the opportunity to discuss the implementation process and the most recent IMPROVE monitoring data and VIEWS data. Records of annual consultations and progress report consultations will be maintained in Georgia EPD's regional haze files.

G. Periodic SIP revisions and Five-year Progress Reports

As also summarized in section IV.D of this action, consistent with 40 CFR 51.308(g), GA EPD affirmed its commitment to submitting a progress report in the form of a SIP revision to EPA every five years following this initial submittal of the Georgia regional haze SIP. The report will evaluate the progress made towards the RPGs for each mandatory Class I area located within Georgia and for each mandatory Class I area located outside Georgia that may be affected by emissions from within Georgia. Georgia also offered recommendations for several technical improvements that, as funding allows, can support the State's next LTS. These recommendations are discussed in detail in the Georgia submittal in Appendix K.

If another state's regional haze SIP identifies that Georgia's SIP needs to be supplemented or modified, and if after appropriate consultation Georgia agrees, today's action may be revisited or additional information and/or changes will be addressed in the five-year progress report SIP revision.

V. What Action is EPA Taking?

EPA is proposing a limited approval of a revision to the Georgia SIP submitted by the State of Georgia on February 11, 2010, and supplemented on November 19, 2010, as meeting some of the applicable regional haze requirements as set forth in sections 169A and 169B of the CAA and in 40 CFR 51.300-308, as described previously in this action.

VI. Statutory and Executive Order Reviews

A. Executive Order 12866, Regulatory Planning and Review

The Office of Management and Budget (OMB) has exempted this regulatory action from Executive Order 12866, entitled “Regulatory Planning and Review.”

B. Paperwork Reduction Act

Under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq., OMB must approve all “collections of information” by EPA. The Act defines “collection of information” as a requirement for answers to * * * identical reporting or recordkeeping requirements imposed on ten or more persons * * *. 44 U.S.C. 3502(3)(A). The Paperwork Reduction Act does not apply to this action.

C. Regulatory Flexibility Act (RFA)

The RFA generally requires an agency to conduct a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small not-for-profit enterprises, and small governmental jurisdictions.

This rule will not have a significant impact on a substantial number of small entities because SIP approvals under section 110 and subchapter I, part D of the CAA do not create any new requirements but simply approve requirements that the State is already imposing.

Therefore, because the federal SIP approval does not create any new requirements, I certify that this action will not have a significant economic impact on a substantial number of small entities.

Moreover, due to the nature of the federal-state relationship under the CAA, preparation of flexibility analysis would constitute federal inquiry into the economic reasonableness of state action. The CAA forbids EPA to base its actions concerning SIPs on such grounds. *Union Electric Co., v. EPA*, 427 U.S. 246, 255-66 (1976); 42 U.S.C. 7410(a)(2).

D. Unfunded Mandates Reform Act (UMRA)

Under sections 202 of the UMRA of 1995 (“Unfunded Mandates Act”), signed into law on March 22, 1995, EPA must prepare a budgetary impact statement to accompany any proposed or final rule that includes a federal mandate that may result in estimated costs to State, local, or tribal governments in the aggregate; or to the private sector, of \$100 million or more. Under section 205, EPA must select the most cost-effective and least burdensome alternative that achieves the objectives of the rule and is consistent with statutory requirements. Section 203 requires EPA to establish a plan for informing and advising any small governments that may be significantly or uniquely impacted by the rule.

EPA has determined that today’s proposal does not include a federal mandate that may result in estimated costs of \$100 million or more to either state, local, or tribal governments in the aggregate, or to the private sector. This federal action proposes to approve pre-existing requirements under State or local law, and imposes no new requirements. Accordingly, no

additional costs to State, local, or tribal governments, or to the private sector, result from this action.

E. Executive Order 13132, Federalism

Federalism (64 FR 43255, August 10, 1999) revokes and replaces Executive Orders 12612 (Federalism) and 12875 (Enhancing the Intergovernmental Partnership). Executive Order 13132 requires EPA to develop an accountable process to ensure “meaningful and timely input by State and local officials in the development of regulatory policies that have Federalism implications.” “Policies that have federalism implications” is defined in the Executive Order to include regulations that have “substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government.” Under Executive Order 13132, EPA may not issue a regulation that has Federalism implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the federal government provides the funds necessary to pay the direct compliance costs incurred by state and local governments, or EPA consults with state and local officials early in the process of developing the proposed regulation. EPA also may not issue a regulation that has Federalism implications and that preempts state law unless the Agency consults with state and local officials early in the process of developing the proposed regulation.

This rule will not have substantial direct effects on the states, on the relationship between the national government and the states, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132, because it merely approves a state rule implementing a federal standard, and does not alter the relationship or the distribution of power and responsibilities established in the CAA. Thus, the requirements of section 6 of the Executive Order do not apply to this rule.

F. Executive Order 13175, Coordination with Indian Tribal Governments

Executive Order 13175, entitled “Consultation and Coordination with Indian Tribal Governments” (65 FR 67249, November 9, 2000), requires EPA to develop an accountable process to ensure “meaningful and timely input by tribal officials in the development of regulatory policies that have tribal implications.” This proposed rule does not have tribal implications, as specified in Executive Order 13175. It will not have substantial direct effects on tribal governments. Thus, Executive Order 13175 does not apply to this rule. EPA specifically solicits additional comment on this proposed rule from tribal officials.

G. Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks

Protection of Children from Environmental Health Risks and Safety Risks (62 FR 19885, April 23, 1997), applies to any rule that: (1) is determined to be “economically significant” as defined under Executive Order 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

This rule is not subject to Executive Order 13045 because it does not involve decisions intended to mitigate environmental health or safety risks.

H. Executive Order 13211, Actions that Significantly Affect Energy Supply, Distribution, or Use

This rule is not subject to Executive Order 13211, “Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use” (66 FR 28355, May 22, 2001) because it is not a significant regulatory action under Executive Order 12866.

I. National Technology Transfer and Advancement Act

Section 12 of the National Technology Transfer and Advancement Act (NTTAA) of 1995 requires federal agencies to evaluate existing technical standards when developing a new regulation. To comply with NTTAA, EPA must consider and use “voluntary consensus standards” (VCS) if available and applicable when developing programs and policies unless doing so would be inconsistent with applicable law or otherwise impractical.

EPA believes that VCS are inapplicable to this action. Today’s action does not require the public to perform activities conducive to the use of VCS.

List of Subjects in 40 CFR Part 52

Environmental protection, Air pollution control, Intergovernmental relations, Nitrogen oxides, Particulate matter, Reporting and recordkeeping requirements, Sulfur dioxide, Volatile organic compounds.

AUTHORITY: 42 U.S.C. 7401 *et seq.*

Dated: February 15, 2012

Signed: A. Stanley Meiburg

Acting Regional Administrator,

Region 4

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